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The Beattie-Smith Lectures.¹

(THE UNIVERSITY OF MELBOURNE.)

SOCIAL HEALTH AND PSYCHIATRIC SERVICE.

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LECTURE I.

With the sixth atom bomb about to be exploded under blue Pacific waters and man's primitive impulses seemingly uncontrolled, one could be excused a descent into "loathed Melancholy, of Cerberus and blackest midnight born", were it not for the fact that an historical perspective acts as a due and proper corrective. It is, after all, somewhat reassuring to note that Einstein considers the world to be 10,000 million years old, whilst Sir Arthur Keith places the time of divergence of anthropoid and human stocks as being during the mid-Miocene period, a mere one million years ago; this is to be compared with the 50,000 years long history of *Homo sapiens*, the 10,000 years since Neolithic man was extant, and the eighty years since Charcot distinguished organic and functional nervous disorder by means of hypnosis. When we realize that the mental hygiene movement had its inconspicuous origin in 1907 and that social psychiatry has been really appreciated only in the past 20 years, and, when we come to equate this with what psychiatry has achieved in this short period, then we must feel that there is a hope that man's mental precesses can be adjusted quickly enough to the advance of science to prevent his own self-destruction.

History is written as being made up of epochs, but the distinction into clear-cut periods is to some extent

artificial. Strecker⁽¹⁾ very pointedly draws our attention to the remarks of Socrates who, returning from the Thracian campaign 2500 years ago, chided the Athenian physicians for not realizing, as did the Thracians, that the body would not be cured without the mind. "This", Socrates said "is the reason why the cure of many diseases is unknown to the physicians of Hellas, because they are ignorant of the whole."

Yet, historical studies show that external cultural influences have been such that this knowledge is only now beginning to be applied.

The theological attitude to insanity, which developed in the latter part of the Roman era and lasted over 1000 years, negated the tolerant, humane attitude of Greek medicine, and the conception of mental disease as being due to possession by evil spirits and a result of past sinfulness, which held the field, has lasted even to the present day; it is by no means uncommon to find not only patients and their relatives expressing these ideas, but also qualified practitioners of medicine adopting a moralistic attitude to certain forms of mental disorder. This dead-weight of moralistic prejudice handicapped the development of psychology, and held back psychiatry at a time when great advances in pathology, histology, physiology and bacteriology were being made.

Moreover, with the development of the merchant classes in the later Middle Ages and the growth of urban centres, it became necessary to restrict the activities of the insane in these close-knit communities. Accordingly the insane were locked up, but, since they were considered to be "possessed by evil spirits", they were beaten and chained up. Here is a description of conditions in the Salpêtrière of Paris around 1800:⁽²⁾

These chronic insane were treated like animals. They were shackled to the walls of their cells by iron collars which held them flat against the wall and permitted little movement. They could not lie down at night as a rule, though occasionally the collars were opened and the patients were permitted to lie down on straw pallets, if their hands and feet could still be shackled.

¹ Delivered at Melbourne on April 19 and 26, 1948.

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No attention at all was paid to the type of diet given to the patients. They were presumed to be animals and, as such, they would have no discrimination. All the insane were considered madmen and, as such, were thought of as less than beasts who must, for the safety of other human beings, be locked up.

The following is a description of conditions in 1807 in England by Sir G. O. Paul, who, writing on pauper lunatics, made this statement: (3)

I believe there is hardly a parish of considerable extent in which there may not be found some unfortunate creature of this description who, if his ill-treatment has made him phrenetic, is chained in the cellar or garret of a workhouse, fastened to the leg of a table, tied to a post in an outhouse, or perhaps shut up in an uninhabited ruin, or, if his lunacy be inoffensive, left to ramble half-naked or starved through the streets or highways, teased by the scoff and jest of all that is vulgar, ignorant and unfeeling.

Asylums, generally, were nothing more or less than penal centres which were placed as far away from the residential section of the city as possible, and this heritage has even now not been fully overcome, despite the humane reforms of the nineteenth century, initiated by Pinel and Esquirol in France, by Tuke and Connolly in England and by Dorothea Dix in the United States.

The study of mental disease in the past has been handicapped by the isolation of psychiatrists who, in their remote asylum fastnesses, have exercised a custodial function over a group of asocial mentally afflicted individuals, have engaged in speculative controversy, and have failed to keep abreast of advances in other specialties.

The first world war was the precipitating factor which broke this isolationist spirit of psychiatry and drew attention to the extraordinary prevalence of non-psychotic mental disorders which, at that time, were being largely ignored in the general practice of medicine, or were being treated as organic disease often with dire results. No advance could have occurred, of course, without the pioneering work of Sigmund Freud, who, by his enunciation of psychic determinism and the dynamics of the unconscious, laid the foundations for an appreciation of the abnormal mental processes which were observed in the sick soldiers.

Dr. W. Beattie-Smith was experienced in all types of mental disorder, since he not only worked as a medical officer in the State Mental Hospitals Department of Victoria, but later took over the role of practising psychiatrist in the community where he naturally met the minor mental disorders. He was accordingly able to appreciate the significance of recent events, and, with a considerable foresight based on what one may term a practical idealism, he founded a bequest which was "to be used to establish a few annual lectures on the early treatment of insanity, as", he said, "I consider the practitioner and the public are in need of much education in regard to this subject".

There exists at the present time a schism between psychiatry and general medicine, which has been a natural consequence of the great discoveries in experimental biology which occurred in the second half of the nineteenth century, and were led by Louis Pasteur in bacteriology and by Claude Bernard in physiology. The latter, however, foresaw the dangers which might arise from a purely mechanistic interpretation of experimental physiology, when, at a very mature stage of his mental development, he gave the following warning: (4)

But no one in the present state of biological science can pretend that physiology is able to supply complete solutions of pathological problems; we must ever strive to solve these problems by physiological inquiries, for that is the true scientific path; but we must carefully guard again the illusion that we have already gained the solution. Hence the prudent and reasonable course at the present moment is to explain all that part of disease which can be explained by physiology, and to leave that which we cannot explain to be explained by the future progress of biologic science. . . . But if . . . some delusive approach of physiology and pathology

give rise to the ambition to explain prematurely at one step the whole of the disease, then one loses sight of the patient, one gets a wrong idea of the disease, and by a false application of physiology, experimental medicine is hindered instead of being assisted in its progress.

The implications of such a prophetic utterance, and the lessons of the first world war, were largely ignored in the period between 1914 and 1939. True, psychoanalysis made some progress, but there was much internecine bickering, and the concepts which were employed were often theoretical and terminology was often obscure; however, some progress was made. The mental hygiene movement had been founded by Clifford Beers in the United States of America in 1907, and was originally intended to deal with the early management and after-care of psychotics; but after the first world war, it was quickly seen that the problem of mental disorder could not be confined to such narrow limits. Knowledge was accumulating which showed that the roots of mental disorder were often to be found in the early development of the individual, and the child guidance movement quickly came to fruition, since it became apparent that it was through this medium that much frank mental disorder might be prevented. It was also perceived that mental disorder might be prevented by attention to social factors, and it became necessary to train more and more social workers to implement the work of institutional and child psychiatry. But progress was really painfully slow, and in 1939 the main bulk of psychiatry was still confined within narrow limits; there were relatively few out-patient centres for early psychotics and psychoneurotics; child-guidance clinics were only serving a small percentage of the population; and the vast problem of those conditions which were seen to be related to mental disorder—criminality, alcoholism, drug addiction, unemployment, chronic invalidism, vagabondism *et cetera*, were being left relatively untouched.

When the second world war came, medicine was again unprepared for the magnitude of the psychiatric problem; preselection was hopelessly inadequate, whilst the number of trained psychiatrists was woefully small and could not cope with the large number of cases which swamped the general medical and surgical beds. But, again, this period was effective in bringing to the notice of medical men, steeped in the organic approach, the need to consider the patient as a whole, to realize that the psychological element was often more disabling than the organic element, and also to note, surprisingly enough, that symptoms could often respond to relatively superficial methods of encouragement, persuasion and suggestion. This last phenomenon, by the way, has been largely responsible for the success of "quacks" and the various healing cults. It also demonstrated the value of the mental hygiene consultative team, consisting of psychiatrist, psychologist and social worker, in preventing the progressive development of mental disorder in the individual, as well as in generally arranging a preventive programme of mental health, designed to deal with such factors as morale and personal adjustment. Besides this, group techniques and rehabilitation of the sick, both of considerable social significance, were developed. But what was more importantly displayed than anything else was not the quality of the problem but the extent—and it is this which, more than anything, makes the problem of psychiatric ill-health of such social significance.

It has long been appreciated that 50% or more of the hospital beds of any of the so-called civilized communities of the western world are taken up by mental hospital patients. United States services' figures show that of 15,000,000 men examined for the army, nearly 2,000,000 were rejected, and of those, neuro-psychiatric disorders accounted for 37% (that is, one in twenty); yet even so, during the war, despite the fact that this large number of subefficient members of the population had been weeded out, 39% of all men discharged for medical reasons were still in this group. A recent correspondence in the *British Medical Journal* has again emphasized what has long been recognized—namely, as Wearn (5) puts it, that "at least 5 out of every 10 patients who consult physicians today prove through examination to have no organic cause for their

complaints". Dale Groom,⁽⁵⁾ a general physician, states the problem in these terms:

Psychiatric illness affects the largest single group of patients. While they occupy more hospital beds than any other groups together, most of them are not in mental hospitals, but are frequenting physicians' offices to complain of innumerable and bizarre psychogenic symptoms The common neuroses, reactive depressions, involuntional melancholias and other emotional disorders amenable to treatment should be recognized as such, and their victims should be treated for their actual mental illnesses rather than for some incidental and non-existent organic discrepancies. "diagnostic placebos" which may serve as foci on which the false symptom patterns ultimately can become fixed beyond accessibility.

Again, I quote Walter C. Alvarez,⁽⁶⁾ a general physician who is in the forefront of the study of psychosomatic disorders:

Perhaps one person in thirteen in this country is either insane or in need of psychiatric help, and one in nineteen in the community will eventually be committed to some public institution for the care of the mentally unfit To us, insanity always seemed a problem apart, of concern only to Superintendents of Asylums. We knew nothing about it; we had no desire to learn anything about it; and worst of all, we could not see what concern it was of ours. Today, we are just beginning to see that from the fringes of this huge reservoir of psychopathy we are getting a high percentage of our most troublesome patients with the most puzzling diagnostic problems. Furthermore, for lack of any training in psychiatry, we keep failing to see that quite a few of the patients whom daily we label as just overly worried, hypochondriac, "enjoying illness", chronically exhausted, unco-operative, or just "ornery", sullen, mentally inaccessible and unfriendly, are mildly but definitely psychotic Soon, I hope, we are going to realize that insane persons are daily going through our vaunted complete examinations and coming out with a perfect report.

One now realizes that, besides these frank psychiatric cases, there are the psychosomatic disorders, such as peptic ulcer, hypertension, arthritis, diabetes, heart disease, neurodermatitis, enteritis, and the allergic disorders, in which the emotional factor may be causative or responsible for exacerbations. Moreover, organic illnesses may have a superadded element of neurotic or psychotic symptomatology, and before a true picture of the presented symptoms can be obtained, it is necessary to unravel the tangled threads and to assign to each symptom its proper aetiological significance; the "cure" of the organic disability is often remarkable once the anxiety and/or social factor is dealt with. It pays well to remember the oft-repeated dictum that "each scar on the abdomen of such a patient inflicts yet another scar on the mind".

This problem of the widespread incidence of mental disturbance is not a new one; it has always been with us although there is definite evidence of an increase in the past sixty years. Irene N. Clough,⁽⁷⁾ for instance, draws our attention to the "accidie" of the mediaeval monks, to Dostoevsky's mention of the frequent incidence of nervous disorders in Russian peasant women, and to Cotton Mather, a seventeenth century divine, who refers to "New England, a country where splenetic maladies are prevailing and pernicious, perhaps above any other". Also, the eighteenth century John Wesley refers to the widespread incidence of melancholia, which has earned for itself the label of the "Englishman's disease".

In times of stress, of course, these disorders increase in numbers, as is shown by the lessons of war. The degree of resistance to stress depends on a factor which we term morale, which is really the state of ego-development. Where there is a poor ego-development or the environmental factor is one productive of insecurity, breakdown is likely; it may then be seen that environmental factors, such as the threatening international situation and unemployment, may cause an increasing number of breakdowns; similarly, it may be seen that a cultural environment which prevents the proper development of the personality will also increase the number of neurotics in the community because of the resultant low threshold to stress in the individual.

So we see how pertinent are the observations of Halliday, who in an outstanding series of papers,^{(8) (9) (10) (11) (12) (13)} has demonstrated a rise in incidence of the psychosomatic disorders in England from 1870 to 1930. He showed that "the rising trend included not only the various bodily disturbances associated with states of anxiety or depression, but also such defined organic diseases as gastritis, peptic ulcer, exophthalmic goitre, diabetes, 'fibrositis', and the cardiovascular hypertensive disorders".⁽⁹⁾ He has analysed the changing social conditions and has shown how the industrial revolution has been associated with medical consequences which became apparent in the morbidity and mortality statistics towards the end of the nineteenth century; but "it was not until after the first world war that certain of the affections, e.g., duodenal ulcer and the bodily disturbances of anxiety states, assumed almost epidemic form".⁽¹⁰⁾ The main factor affecting the developing child is, Halliday considers, the diminution in the size of the family, which has resulted in increased personal control by the parents and the production of smooth-muscle tensions. Adults are affected by such factors as a loss of creative satisfaction in work, rapidity of change in the structure of society, increased standardization with repressive control of individual expression, and an increased absence of aims due to a break-up of faiths. Parallel with the rise of psychosomatic diseases have been such indicators of nervous tension in the community as a falling birth-rate, an increase in the consumption of tobacco and patent medicines, and an increased interest in popular books on such subjects as health, pseudo-psychology and astrology; also a decline in morale, a decrease in working capacity and an increase in delinquency and crime. Finally, this tension is expressing itself in art, literature, industry, economics, religion and international relationships.

Let us now turn to the general problem of the health of society. There are many definitions of society, some of which refer only to organized human reactions; but I myself subscribe to the view that it must also include those forces which are unorganized; it is a structure which is based upon personal relationships, and can exist only when the individual members are aware of each other and have some interests or objects in common. The large mass of unorganized personal relationships are so numerous and varied that they do not lend themselves to scientific treatment; but they cannot be ignored, since it is out of these that society orientations gradually emerge. This will be later shown to be of importance when we come to study the effects of cultural influences on behaviour. The society of man differs from all other social groups, in that whilst he is influenced by society, he is yet sufficiently individual to influence society itself, and there is a constant and considerable interaction between the individual and the demands of society.

We must not, however, be so short-sighted as to imagine that only one discipline needs to be assessed in the field of human interrelationships; a study of society also includes such influences as political economy, anthropology, law and religion. This is important to remember, for when we come to deal with the modification of social structure for the benefit of the individual we must treat all these factors, however fundamental and vital we may consider the psychological factor to be.

Sociology has long been an integral part of university curricula; but it is only recently that social medicine has been recognized as worthy of a university chair in Great Britain. In 1943, Professor John Ryle was appointed to the Chair of Social Medicine at Oxford University, and he has recently drawn attention to three great epochs in preventive medicine⁽¹⁴⁾ which, incidentally, he defines as "a philosophy, a way of thought and life, a subject which should permeate a large part of the medical curriculum and the whole of the practice of medicine". His three epochs, in historical order, are: firstly, the improvement in sanitation, housing, and the empirical control of infectious diseases; secondly, control of infectious diseases through the new knowledge of microbiology and sanitary science; thirdly, the epoch which we are now approaching—the prevention of non-infective diseases, the rehabilitation of the sick and the mitigation of the chronic or

degenerative disorders. It is in relation to this last group that we can see the extreme importance of dealing with the psychiatric aspect of disease, the social features of which must be treated as part of the greater problem of the prevention of the chronic and degenerative disorders, as well as part of the problem of the chronically ill and their rehabilitation. Professor Ryle further emphasizes how, in the past, medical education has concentrated on pathology rather than on health, and on individual pathology rather than on community pathology. He puts it thus:

... individual pathology deals with the quality and effects of diseases and, in practice, assists diagnosis and treatment, while social pathology deals with the quantity and causes of diseases and, in practice, assists prevention.

Medicine has laid much stress on the isolated individual and little stress on preventive factors. The same pathological processes which occur in the individual may be seen in the pathology of families, groups, societies or nations, and in no respect is this more true than when we consider pathological mental processes. Some authorities have gone even further, and have emphasized that the new departments of social medicine should investigate social physiology rather than social pathology—that they should be actively concerned in the health-care of a community. But this is a matter which will be discussed later.

The importance of this whole question has been further emphasized in the Goodenough Report (1944), in which social psychiatry has been considered of sufficient importance to be taken up on a national scale by the Government of Great Britain; the committee stated that more was implied in the term "social medicine" than even mere prevention; it was to be understood as "a conception that regards the promotion of health as a primary duty of the doctor, that pays heed to man's social environment and heredity as they may affect health, and that recognizes that personal problems of health and sickness may have communal as well as individual aspects".

It is from anthropological and ecological studies that we obtain much corroborative evidence of this concept of the social factor in the causation of mental disorder. It is hard to appreciate, without contrasting our western civilization with that of other groups, how the social milieu can affect mental outlook and behaviour so markedly, irrespective of constitutional make-up, though the latter must of necessity play a part in determining the type of disorder and the character of the symptomatology which is produced. One must not lose sight of the fact that any personality, at any point of time, is a resultant of the interaction between biological constitution and experience; and whilst one realizes the significance of social and cultural factors which affect the group, one must needs consider the physique, the emotional drive, the intellectual capacity and the instinctive make-up in any individual case.

Analytical studies have shown us how important are early identifications with adult figures, and have demonstrated the supreme importance of the family constellation which is so constituted, in our particular social structure, that the early foundations of behaviour depend on a restricted series of very intimate personal interrelationships. A mother who is over-protective, over-dominant or rejecting, or whose attitudes are inconsistent, can damage a child irrevocably in its formative years; a negative or hostile father-figure can do likewise; and faulty attitudes of both parents, either singly or combined, can bring out factors of sibling-rivalry. Though this process lays down the basis for future neuroses, these may not emerge till adolescence, when there is often considerable difficulty in emancipating oneself from the strong personal dependency of childhood relationships, or till some socio-environmental factor brings out this tendency at a still later age, as we observe so readily in cases we study during war. It is important to appreciate the social consequences of this process, for one neurotic or psychopathic parent may affect some of the children, however stable the other parent may be; whereas, if both parents are unstable, the chances that any of the children will

attain maturity without some degree of emotional instability are very small. The snowballing effect of such a process is something of which we must remain fully aware; it is at least a two-generation process and is fed and maintained by the general insecurity of urbanized living and by the unsettled state of the world.

Where this highly personalized relationship of early life does not exist, we find that the adults are more stable, and I would draw your attention to the significance of the anthropological studies of Malinowski, Boas, Westermarck, Benedict, Mead and Radcliffe-Brown. Malinowski⁽¹²⁾ demonstrated how all the parts of the culture of a people interlock to form an organismal whole—food-getting, religion, language, economics, geography, kinship, *et cetera*—each part being a necessary condition for everything else. Radcliffe-Brown⁽¹³⁾ did the same for the Australian aborigines, and showed how the relationship between husband and wife, and between parent and child, was related to the whole pattern of the totem system, which also determined the mode of behaviour towards other clan-members.

Whereas, previously, anthropology had been purely descriptive and similarities had been emphasized, Boas drew attention to the fact that although contact between cultural areas caused cultural motifs to be distributed throughout all of them, there were important differences. Emphasis on the differences led to a reorientation which paved the way for the work of Benedict and Mead, who showed that "human personality is not constant" and varies according to the social system in which the particular personality develops. For instance, in Samoa, Mead⁽¹⁷⁾ pointed out that there is no adolescent problem as we understand it; yet in Western civilization there is, as I have already indicated, a strong, erratic adolescence, which we had considered in the past to be due to a necessary adjustment to a new physiological equilibrium. When we go into the Samoan social structure more carefully, we find that the strong ties between the child and just one or two adults do not hold; the ties are slighter and are diffused over a larger number of adults, as well as juvenile children-nurses, who are given control of the youngster for a large part of the day.

Benedict⁽¹⁸⁾ has further shown that two groups in actual contact can differ in personality-expression. She studied two groups of South American Indians, the Zuni, a quiet group who practised religion with decorum and precision, and the neighbouring Plains Indians, who were more violent and erratic, were given to mass hysteria and extremes of religious ecstasy, and who indulged in masochistic behaviour and in peyote, an intoxicant. This contrast was noted throughout the whole of the social structure and influenced all personal relationships. She also analysed two cultures—the Dobu and the Kwakiutl. The Dobu, of the west Pacific, have throughout their system an atmosphere of paranoid suspicion, whilst the Kwakiutl, of North America, have more of a megalomaniac-paranoid tendency; the great majority of individuals in these communities have these attitudes, and it is considered abnormal if this tendency is not expressed. This paranoid picture is referred to as a "cultural deviant", a character-structure which is considered normal in one culture and abnormal in another. Acquisition of possessions and a drive towards security, for instance, are vital in our culture, whereas amongst the Eskimos "so far from being possessed by their things and feeling their possessions a burden, the Eskimos are careless of them to the point of contempt... material possessions hardly enter their scale of value and the giving of presents is regarded as a perversion".⁽¹⁹⁾

In all these studies, the general importance of the family constellation is recognized, but this differs from culture to culture; in Freudian terms, the Oedipus situation varies with different groups. There is a varying degree of male-female dominance, and it is found that the attitude of the parents to each other is a reflection of their attitudes to the children; for instance, the Mundugumor Indians, who consider the sex act one of aggression, have an aggressive society, whilst the Arapesh Indians, to whom the sex act signifies affection, have a tolerant form of society.⁽²⁰⁾ The interesting observation may be made here that this applies

to both men and women, so that, contrary to our Western conceptions of innate secondary sex attitudes, we find in one society aggressive masculine types of female, and in the other males with feminine mannerisms.

In Samoa punishment is rare, or is carried out by persons other than the parents; this, besides the diffusion of early emotional ties already mentioned, helps to bring about the smooth development of the Samoan.⁽¹⁷⁾ One should contrast this with the Western method of emotionally charged, highly personal administration of punishment, in which often, too, an attempt is made to inculcate a sense of shame by reference to some vague, criticising authority (for example, the policeman), for which the child is intellectually unprepared.

Finally, I would mention Bateson's investigation of the Balinese,⁽²¹⁾ among whom the mother encourages the child to affection and then frustrates it by withholding affection. Hence the child finds that climaxes of love and hate are useless and, as a consequence, there are no interpersonal tensions as the child grows up, and the society contains no factions; the Balinese actually have no word for "to try hard", and there are no orators.

In view of the foregoing, we must accept this very important fact:⁽²²⁾

The whole of human behaviour as we know it (with the possible exception of some reflexes) is either learned or modified by learning, and learning is, in large measure, an interpersonal process. The contexts in which it occurs vary from culture to culture, as also do the methods of reinforcement. Thus, not only what is learned is, in some measure, culturally determined, but also the role of the learned behaviour in the psychic life of the individual.

It is necessary to appreciate what has gone before since it applies to differences between countries as well as to differences between minorities within any particular country, to differences between urban and rural areas, and to differences between deprived and settled communities.

Ecological studies, in respect to the last-mentioned differences, have been carried out and have provided us with highly significant data. It is the unsettled state of a social grouping which appears to be the important factor in producing both mental disorder and anti-social behaviour. This state of affairs is found typically in the slum quarters of large urban centres. That it is not the low-grade of the incoming individual that is responsible is shown by such studies as that of Smick and Yoder,⁽²³⁾ in which it is demonstrated that the migrants are often superior in general health and ability to the normal inhabitants. The social disorganization caused by the ever-changing pattern of community ideals and community behaviour means that no constant pattern of conventional behaviour can be laid down, and the result is an absence of general community controls and a liberation of behaviour which is anti-social. The incoming members remain separate and, as they sense the hostility of the community, become more and more isolated and more and more individual in their expression, thus disorganizing the whole of the normal social rapport. Besides the fact that there is little social control in these areas, there is handed down from generation to generation a tradition of gang-behaviour and resistance to authority, which means that the individual follows what is, for him, his normal social code.

The data which are now presented strongly support these statements. For instance, studies of suicide show that the rate runs parallel with the degree of industrialization and urbanization, and it at its maximum in those regions of the city where the population is mobile and heterogeneous.^{(24) (25)} There is no correlation with racial groups, but again a parallelism with the degree of disorganization of the industrial area. Further support of these facts, if any is needed, is that there is a much greater difference between the parts of a city than there is between rural areas, even though the latter are widely scattered and subjected to different economic and cultural influences. Normally a city grows by an inward migration of unskilled persons from smaller cities, from rural areas and from foreign countries, and these naturally gravitate to the industrial slum areas; as time goes on, they or their

descendants tend to move up the social scale and move out to more settled suburbs in outer areas.

Shaw and McKay,⁽²⁶⁾ in 1931, made an ecological study of Chicago, and the results coincided with a series of less complete investigations which were made in 20 other urban centres. Juvenile delinquency was found to be highest in the central slum areas, whilst the outlying residential centres had very low rates; intermediate areas showed a varying gradient, diminishing progressively from the areas adjacent to the slums to the outer suburbs. Although rates for all foreign racial or national groups were very high in the slum areas, they progressively diminished as these groups moved out. That delinquency is not due to mental deficiency is shown by such studies as that of Tulchin,⁽²⁷⁾ in which he demonstrated that a cross-section of the delinquent population shows the same intelligence distribution-curve as that of an average sample of the ordinary population; likewise, frank mental disorder accounts for only a relatively small proportion of total delinquent behaviour. This social form of delinquency must be distinguished from the less common type due to mental maladjustment which has resulted from innate psychological disturbances, organic brain disease or the early establishment of faulty personal relationships; these are distributed widely and are independent of any purely urban ecological distribution. Studies show that prostitution has the same distribution as juvenile delinquency, and furthermore, sexual licence usually starts as a form of delinquency amongst girls, and it is only later on that the economic potentialities of this form of behaviour are realized; the primary factor in the loose sexual behaviour is a social factor.

So far as the distribution of frank mental disorder is concerned, Chicago was again the subject of study by Faris and Dunham⁽²⁸⁾ in 1939; their results were confirmed by control studies made in Providence, Rhode Island, and an additional six Middle West cities. The distribution paralleled that of juvenile delinquency—namely, the highest rates were in the central slum areas, the next were in the adjacent hobo and rooming-house areas, and the least were in the outer residential areas. It was suggested that this might be due to an increased likelihood of admission to State hospitals among the lower-income groups, to a drift of mentally afflicted individuals or families to the slum areas, or to a racial tendency, seeing that there was a high proportion of foreign-born population in these areas; however, this cannot be, as is shown by the different patterns of distribution of the various psychoses, not only in degree of concentration, but also in areas of concentration. For instance, the concentration of schizophrenia follows the general pattern already described for the total incidence of mental disorders; general paralysis of the insane and alcoholic psychosis are largely found in rooming-house, Negro and some slum areas, with an incidence which parallels venereal disease; whilst manic-depressive psychosis is almost uniformly distributed through all areas. The last-mentioned, with its strong dominant hereditary factor, escapes ecological distribution; but, schizophrenia, which is believed to be transmitted as an autosomal recessive, cannot escape social influence and, therefore, appears maximally in those areas where social disorganization is most prominent.

Interestingly enough, the distribution of senile psychoses follows exactly the same pattern as that of schizophrenia; what the exact significance of this is, it is impossible to say at present. With regard to schizophrenia and its sub-classifications, there are even different distributions for these; for example, the paranoid form is restricted more to the hobo and rooming-house areas, whilst the catatonic rate is low in these areas but is high in the foreign-born slum areas. The catatonic tends to fall into the lower age group, and hence there is a lesser integration of his personality prior to his breakdown, owing to a lack of development which has resulted from the less stable social surroundings in which he has developed.

I would refer to a study which I myself made in 1940 in Western Australia, but did not publish because of the political contingencies of the time. In it, I showed that of a total foreign immigrant population in Western Australia, which averaged approximately 15,000 out of a total popula-

tion of 450,000 in any one year from 1929 to 1939, the incidence of psychosis was 17.5 per 100,000 of population. This compared with an incidence of only four per 100,000 for Australian and British immigrant populations. The economic and social consequences of this study should be apparent to administrators concerned with immigration, for, as has already been pointed out, full-blown psychoses reflect a greater incidence of border-line psychotic and lesser mental disorders.

J. McV. Hunt⁽²⁰⁾ has produced a most significant study of a group of adolescent boys of a particular neighbourhood. Some of the boys engaged in sexual perversions, some of them in religious revivalist experiences and some in both. Those who took part in both the perversions and the religious experiences developed mental disorder later on in life; this was undoubtedly due to the conflicts engendered by these opposing influences which were carried on into later life and, at varying intervals afterwards, produced a final breakdown, the time of breakdown varying with constitutional and earlier developmental factors.

Still more significant is the study of Maloney,⁽²¹⁾ to whom the opportunity was presented, during the recent hostilities, of comparing neuroses and psychosomatic disorders in Okinawa and Guam; whilst the incidence of both of these is high in the latter, it is negligible in the former. The Okinawa culture is consistent; children receive considerable attention and affection throughout their early years, after which independent behaviour is encouraged. Development is smooth, stoicism in the face of war-stress is exhibited and there is no abnormal reaction to surgical procedures. This behaviour was not of the inhibited type, since psychosomatic disorders were absent, but was due to a well-developed capacity to make adjustments to environmental stress. Guam, however, has a disorganized cultural environment which is similar to the urban slum areas of Western civilization. There is a mixture of native, Oriental and Western influences. Children were subject to repressive attention and maternal over-protection throughout childhood. Adults were unstable, exhibited psychopathological disorders, and over-reacted to surgical procedures.

Faris⁽²²⁾ stresses that the abnormalities which we have described are:

... not essentially aspects of city life or civilized society but rather of the populations which are changing from one system to another. There are many successful social systems among the most simple preliterate peoples, and there are established parts of advanced civilized society that have no serious social maladjustments. The trouble occurs in the middle stages of the process of change.

In our Western civilization we are watching the break-up, on a large scale, of the conventional social systems due to the impact of the industrial revolution, which produced large population shifts and increased industrial urbanization, and has released unconventional modes of behaviour. This, of course, is a relatively superficial mode of expressing what are really deeper psychopathological mechanisms, which have been basically developed in the individual and are released by the appropriate environmental stimuli. Just as in the Middle Ages when mass-hysteria swept through whole communities, just as amongst the Plains Indians in whom mass dissociative hysterical excitement can be generated, so in our modern communities, because of the tendency which our civilization has of producing underlying inhibited aggressiveness, so mass panics can be created, mass paranoid tendencies can be evoked, and mass aggression can be released. We need not look further than the recent pictures presented by the German nation, which is analysed so competently by William Brown⁽²³⁾ who expresses the general psychological mechanism:

... the course of history of a nation and its social structure do tend to develop and encourage certain types of mental outlook ... which, in the average, may express a general trend of national character and, in times of mass movements and popular upheavals, may manifest a sort of collective personality that has its own reality and unitary effectiveness.

So far, I have demonstrated how social and cultural factors create conditions which either cause or accentuate abnormal mental states. It is my intention in the remaining part of this first address to show how the specialty of psychiatry enters the social picture with reference to a large number of community problems.

The intelligence of the population is considered in some quarters to be falling. Sir Cyril Burt⁽²⁴⁾ has carefully studied the relationship between intelligence and fertility and has demonstrated how low is the fertility of the professional as compared with the labouring classes. Halperin⁽²⁵⁾ for instance finds that the differential birth rate when two mental defectives marry, as compared with that when two above-average people marry, is as 5.03 to 1.27. Terman⁽²⁶⁾ has since 1922 followed up over 1050 children of an intelligence quotient of above 140; although a higher percentage were married than in an average sample of the population, they had produced only 1500 children, which was insufficient to maintain the stock. It was estimated that if present trends continued, the population in Great Britain would have doubled the number of feeble-minded and halved the number of scholarship standard students. There may, of course, be certain factors which have been neglected, such as environmental influences, but all indications point to these factors as too small to affect the main trend. It is generally considered that high-grade defectives are the resultant of a number of sub-standard genes affected by an unfavourable environment, whereas the lower grades of defective are due to recessive genes or to major accidents of development.⁽²⁶⁾ It is in the former group, where the poor heredity is coupled with a poor environment, that many of the "social problem group" arise, often resulting from the atrocious standard of family life which has been built up; the latter group, of course, provide the country with a custodial problem, though fortunately their standard of fertility is low.

The relationship between mental deficiency and crime is one about which there has recently been a revision of opinion. It was originally estimated that a large proportion of delinquents in criminal institutions were mentally defective, but unfortunately adequate control studies of a similar cross-section of the community had not been undertaken. Such studies as that of Tulchin⁽²⁷⁾ show that a group of male army draftees have much the same intelligence distribution as the delinquents; in actual fact, among 5000 men in the reformatory, there was a slightly higher percentage of superior intelligences and a slightly less percentage of inferior ones. This does not mean to say that certain defectives do not constitute a social problem so far as delinquency is concerned; but the percentage is not higher than that which exists in the ordinary population.

Besides catering for the custodial care of grossly mentally defective persons in special colonies, one needs institutional care for post-encephalitics and epileptics, as well as special training schools for higher grade defectives. The numbers in the community are by no means inconsiderable, and it is not fair to the children or to their families to leave the latter to deal with what is a highly specialized problem. At present in Australia the facilities are generally inadequate, and one finds grossly mentally defective persons placed with the insane, to the detriment of the latter, or dealt with by charitable organizations or by their own families.

I now draw your attention to a group of individuals who are termed, according to the English *Mental Deficiency Act* of 1913, moral imbeciles, and whom we now generally include in the heterogeneous group of psychopathic personalities, since the majority of these individuals, though devoid of moral sense, are not of subnormal intelligence. They are unstable, show a marked lack of social responsiveness, and from an early age are subject to anti-social or asocial behaviour often episodic in character. Originally attempts were made to delineate a special criminal type of individual, based on theories of hereditary atavistic tendencies, but all efforts to do so have failed and emphasis has now shifted to social and psychological factors; still, most psychiatrists are agreed that there are,

in these cases, strong inherent factors. It is found that 3% to 5% of juvenile delinquents are psychopaths; yet they constitute up to 25% of the adult inhabitants of correctional centres, the reason being that they form a high percentage of recidivists. Not only does this group produce criminals, but it also produces a high proportion of the "queer" people of the community—eccentrics, vagrants, ineffectives, drug and alcohol addicts, sex perverts and gamblers—presenting a social problem of no mean order. Bender⁽³⁷⁾ has recently shown how important is interference with the child-mother relationship, especially in the critical first three years of life, in producing some at least of the psychopathic states. This work is in agreement with that of Goldfarb,⁽³⁸⁾ who made comparative studies on institution and foster-home children; the former are inhibited, show an absence of goal-striving, an undue self-awareness in relation to the implications of behaviour and passive random behaviour, and need stimulation to bring out ego-properties; this picture is most obvious by adolescence and contrasts with the rejected child, who is tense and aggressive, and has a greater amount of insight. This work has received special emphasis because of the recent study in England by the specially appointed Care of Children Committee, who examined these deprived children—waifs and strays, orphans, delinquents, the mentally and physically handicapped and the mental defectives—and produced such an appalling picture that a bill to overcome this disturbing state of affairs was rushed through Parliament. My own experience indicates that a similar and possibly worse state exists in Australia.

Problems of mental health are bound up with the stability of the home and its effect on the early emotional development of the individual. It is, therefore, most disturbing to read of the increase in broken homes and the rising divorce rates. This phenomenon is visible throughout Western civilization. For instance, in United States of America in 1946⁽³⁹⁾ there was one divorce for every two marriages in urban areas, with a one to three ratio for the whole country, which was double the figures for 1937. A significant factor in this process is the increasing number of women who are employed in industry—7,000,000 married women out of a total of 16,000,000 employed in 1944, as compared with a total of 11,000,000 in 1938. Lundberg and Farnham⁽⁴⁰⁾ have recently produced a book in which they trace the modern tendency to neurotic instability to the influence of women, who, after the break-up of the previously self-sufficient home life by the industrial revolution, strove for emancipation and for equality with man; there seems to be little doubt that this striving has not produced either happiness or stability, but has rather led to a degree of sexual licence which has made the home less stable and has increased the likelihood of family disintegration; the dissatisfaction of the housewife who sees others apparently not restricted and who feels insecure about the fidelity of her husband, produces the frequent neurotic "bridge and phenobarb" female of our time.

We have already dealt with certain aspects of criminality in our discussions on mental deficiency and psychopathic personality, and in our ecological studies. It is essential for psychiatric help to be available, because modern studies estimate that 20% to 35% of more serious criminal acts are performed by psychotics, psychopaths, psychoneurotics, mental defectives or epileptics. Of these, it is estimated that half are susceptible to treatment⁽⁴¹⁾ and psychiatric aid will help isolate these at an early stage. Crime is increasing, and the cost to the community is very much higher than the cost of education.⁽⁴²⁾ It is to be noted that the number of serious crimes, such as murder and rape, bears inverse proportion to the availability of beds in mental hospitals in the community.

Education is a branch of sociology which makes use of psychiatric aid and will do so to a greater extent as the child guidance movement extends. It is now realized that it is just as important to cater for the emotional development of the child as for his intellectual growth, and the study of problem children has led to new and valuable reorientations of educational outlook, especially with regard to the physically and mentally handicapped and also to the group of "gifted" children. Psychiatric studies

of student groups have shown how important is proper mental development in the adolescent and post-adolescent phases; mental disturbance here is a potent source of morbidity and wastage, and McBee⁽⁴³⁾ has shown how often the failures are connected with faulty home conditions.

An expansion of psychiatry into the industrial field has occurred. The recent comprehensive research of Russell Fraser⁽⁴⁴⁾ on the incidence of neurosis amongst factory workers has demonstrated the large amount of morbidity and wastage which occurs from this disorder. At a time when production is so important, even when the outside implications of the high percentage of people afflicted are excluded, the national importance of this problem is profound. It was seen that 10% of 3000 workers, male and female, had suffered a definite disabling neurotic illness, whilst another 20% had had minor neurotic manifestations in the preceding six months; from a quarter to a third of all absence from work was due to this cause. The loss of work was equivalent to three days *per annum* for every man studied and six for every woman. Social factors were shown to be important in the genesis of these disorders—most commonly, unsatisfactory human relations and decreased social contacts. With regard to the job itself, long hours, bad lighting and monotony were factors in maladjustment.

Post⁽⁴⁵⁾ recently studied psychiatric illness amongst coal-miners in England. Very few cases were due to the nature of the work; the majority were the result of deep-seated personality problems, despite the fact that initially 60% of the patients blamed their work for the illness.

In England, the recognition of the importance of the psychiatric factor in the maintenance of industrial efficiency has led to the establishment of such centres as Roffey Park, which is especially concerned in evolving a scheme for the prevention of neurosis in industry and in the rehabilitation of patients with established neuroses.

Accidents in industry, on the road and in the home all provide significant data when studied from the psychiatric standpoint. Flanders Dunbar⁽⁴⁶⁾ has demonstrated how fractures may be related to psychiatric disturbance at the time of the accident; also, accident-proneness occurs with significant frequency in certain personality types. The transfer of 5% of drivers with the highest accident record to other jobs produced a decrease in the over-all accident rate of 80%. In Connecticut, a study is being undertaken on the 100 drivers who have the highest accident rates, and they are to be compared with 100 drivers who have had no accident in 100,000 miles of driving; the result is being awaited with interest. There is need for a good deal of research into this subject, in view of the enormous social and economic consequences of accidents in the community.

I have already indicated how necessary it is to study the psychiatric aspect of general medical disorders, and would especially stress the value of this aspect in relation to head injury, epilepsy, post-encephalitic states, alcoholism and sexual aberrations. The last-mentioned are not crimes in the usual sense of the word, but are deep-seated personality disorders and need to be treated as such. Alcoholism is a tremendous problem from social, economic and psychiatric aspects, and it is increasing in urban areas; it is found to parallel community disorganization, and although one in ten cases admitted to mental hospitals has some alcoholic basis, it should be recognized that alcoholism is most often a symptom of an underlying abnormal mental process, rather than a cause.

Finally, we come to the great problem of psychiatry and geriatrics. In Great Britain⁽⁴⁷⁾ the aged population has increased from 2,500,000 in 1901 to 6,500,000 in 1944, and the Beveridge Report has estimated the figure at 9,500,000 by 1971. This is a direct consequence of the increased longevity of the population, and as the birth rate falls, so one finds a higher percentage of aged people in the community. Above sixty years of age, the incidence of illness, especially of psychiatric disorder, is high. It is estimated that the number of beds for psychotics needed for the ordinary population is being held in check, and perhaps is even being diminished; the increased demand

for mental hospital beds is due to the increase in arteriosclerotic and senile disorders.

And so we leave this disturbing picture with the "last scene of all that ends this strange eventful history".

A brief historical sketch of psychiatric development has been presented in order to be able to visualize future trends. We have learnt how important are external factors in the production of mental disorder, though individual constitution is not discounted. We have seen how individual trends can present themselves *en masse* in group behaviour. And, more than anything, we have realized how extensive is the psychiatric problem of the community and how numerous are its manifestations.

It will be my endeavour, in the next lecture, to show what psychiatry has to offer in the way of an amelioration of these problems.

CHINA'S STRUGGLE FOR MEDICAL PROGRESS.

By BRUNO KROKER,

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IN no field of human endeavour has greater progress been made in China during the last thirty-six years, since the advent of the republic, than in science and medicine.

With the exception of a few science departments of a comparatively few universities and colleges, all organized and conducted by westerners, and an even smaller number of hospitals and medical laboratories, also under the aegis of foreign residents, there were no scientific and public health institutions in this country prior to 1911.

Today there are so many purely Chinese organizations covering every branch of scientific research scattered throughout the country that it is altogether out of the question to deal with them individually. At the latest count one month ago the Ministry of Health recorded 278 public hospitals with a total of 20,540 beds and of 6004 medical personnel, including nurses and doctors.

In addition there were eleven auxiliary hospitals of national medical colleges or other medical institutions which also extend service to the public. Of the 278 public hospitals, seven were State operated, 182 were run by the various municipalities or provinces, and the remaining 89 were hospitals established and operated by civic bodies in various localities with the assistance and under the supervision of the Chinese Ministry of Health.

There is approximately an equal number of health institutions and hospitals, such as the world-renowned Peking Union Medical College and the Henry Lester Institute of Medical Research, maintained by foreign missionary societies and other organizations, such as the Rockefeller Foundation, the International Relief Committee of China, and others. Small though the total number of Chinese public hospitals and foreign-maintained health institutions may be in proportion to China's population, the beginnings of an efficient and well-distributed nationwide network of public hospitals, operating side by side with medical research institutions, may be discerned in its initial stages.

The value of medical research to industry and the general economic development of a country is more fully realized today in China than at any time since the beginning of the past four decades, when modern medical science began to be introduced in this country. Disease, sapping the vitality of the people, can do more to lower the economic position of a country than war, famine and floods.

A really healthy nation cannot help being a prosperous one. The inestimable value of public health bureaux, quarantine stations, medical research institutions, clinics and hospitals follows. The endeavours of China's foreign-trained medical men resulted in the establishment of the National Health Administration, superseded by the Ministry of Health, which is assuming an ever greater

importance in national affairs. The National Quarantine Service was established in keeping with international practice.

Two health-promoting associations of ever wider influence are the Chinese Mission to Lepers and the Chinese Anti-TB Association. China's leading citizens are fully alive to the value and importance of medical research and practice in the country.

But China still has to overcome the power wielded by the vast number of native "doctors", who apply the precepts first laid down by Shen Nung or Emperor Yen, who ruled over the country about 2780 B.C. and who is regarded as the father of Chinese medicine.

Not in every case, however, is the China counterpart of the medieval European "quack" to be condemned entirely. His knowledge is derived from standard ancient medical works, which were ahead of anything the Western world had developed at their time. The earliest works still used for reference by many an old-style medico practising not only in remote areas, but also among the poorer



FIGURE 1.

Dr. Margot Quintana instructing Shanghai public school nurses in preventive dentistry, as part of UNRRA's dental programme in China. (UNRRA photograph.)

classes along the more developed seaboard, are in the form of natural histories, consisting almost exclusively of the naming, describing and figuring of various animals, plants and minerals believed to have medicinal properties. As in most countries the history of medicine in China is divisible into three periods: instinctive, mystical and philosophical. Of these the second included the development of alchemy, largely practised by the Taoist school of philosophy.

It is a matter of interest that many of the Chinese plant drugs discovered in ancient times, whose real origin was unknown to the Chinese native doctors applying them, were accepted by the Western world after laboratory tests and analysis established their medical value according to Western practices. At least sixty of the old-style Chinese drugs have found their place today in the more than 2000 accepted medicines of the modern Western pharmacopœia.

Although in olden times the practice of medicine in China was thought to be superior to that of Western people, there seems to have been a long period during which the Chinese made no progress in medicine and continued the use only of their primitive preparations. In the meantime, however, Western people were developing research in this branch of science, preparing extracts, making tinctures, isolating the constituents and active principles of drugs, evolving new compounds from them and manufacturing synthetic preparations.

As with every other line of endeavour the medical progress achieved by China since the advent of the Republic was arrested during the recent war. The governmental and private support on which the medical

profession could count in the years immediately prior to the war was seriously cut or, in many cases, entirely discontinued. The health of a nation is of supreme importance if it is to be sound economically and industrially. This was realized by UNRRA when first post-war relief and rehabilitation needs for China were formulated, and as a result a substantial medical programme was mapped out.

This programme, though it may appear to many small compared to China's actual needs, was based on the country's existing medical standard just prior to the war. It consists mainly of the procurement of medical supplies to the extent of from twenty-eight to thirty thousand tons at a value of 31 million United States dollars, and secondly of bringing qualified medical personnel to China to assist in the rehabilitation of the national health system. This included hospital rehabilitation, training of medical personnel and epidemic control, as when UNRRA doctors assisted in fighting the outbreak of kala-azar,



FIGURE II.

Members of a junk crew being sprayed with DDT (supplied by UNRRA) by officers of the Shanghai Quarantine Service as a plague control measure. (UNRRA photograph.)

cholera, plague and other similar diseases in a number of rural areas.

In this manner almost one hundred and forty medical specialists, surgeons and nurses were brought to China from all parts of the world to assist in UNRRA's medical programme in this country.

UNRRA's medical programme contributed to the rehabilitation of existing health institutions and agencies through the donation of badly needed medical supplies and the replacement of looted or otherwise damaged equipment.

UNRRA medical personnel were lent to medical institutions throughout the country. Some of these were assigned to medical schools, others worked in ordinary hospitals. They started classes for groups or individuals to bring China's medical profession up to the wartime advances made abroad. Others assisted in the establishment of new hospitals and schools.

UNRRA medical specialists were called into the fight against black fever or kala-azar, an endemic disease which threatened entire communities in North Kiangsu and some parts of Anhwei. Chinese doctors had worked for years to find a cure against this dreaded disease which periodically affects entire villages. A small gnat, known as *Phlebotomus* to science, is suspected of carrying the disease, but so far the intervening host has not been discovered, although a small field rodent, the hamster (*Cricetus griseus*), has come under suspicion. UNRRA physicians found that the disease was due to the germ *Leishmania donovani* circulating in the blood, spleen, liver and bone marrow and causing enlargement of the spleen and liver. Owing to the timely intervention of UNRRA

physicians, kala-azar has been greatly reduced in these areas.

Medical specialists brought by UNRRA to China included dentists, surgeons, eye doctors, X-ray technicians and tuberculosis experts, as well as sanitation experts to assist in the reestablishment of public sanitary systems in the destroyed cities. Training courses were instituted, notably in Peiping and Hankow for X-ray technicians; dental instructions were given to professional men, women and students in the interior as well as in the more advanced port cities.

Qualified nurses who had volunteered from the United States Public Health Service, the British Army's Medical Corps and other wartime medical agencies gave refresher courses to Chinese nurses. In this manner at least 100 nurses were trained in Formosa alone.

UNRRA medical supplies delivered to China so far include 554 of the latest X-ray machines ranging in capacity from 30 milliamperes to 200 milliamperes. Also



FIGURE III.

A nurse of the Shanghai Quarantine Service inoculating the crew of a junk with cholera vaccine supplied by UNRRA. (UNRRA photograph.)

brought to China were laboratory equipment for anti-epidemic teams, water purification units, distillation units, well-drilling apparatus, 44,500 hospital beds including 35 hospital and dispensary units ranging in size from 45 to 1000 beds, and a large amount of surgical instruments.

In all there are 6000 items on UNRRA's medical supply programme. These have been classified into nine categories in keeping with standard practice as follows: (i) drugs and chemicals; (ii) bandages, cotton and adhesive tape; (iii) surgical instruments; (iv) laboratory equipment; (v) dental equipment; (vi) X-ray machinery and accessories; (vii) hospital equipment and supplies; (viii) veterinary supplies, taken care of by UNRRA's agricultural rehabilitation programme; (ix) field equipment and medical kit for first-aid stations.

By far the largest single item of this schedule consists of medicines and drugs, their total worth being about 13 million United States dollars. UNRRA has also made a sizable contribution toward the rehabilitation of China's budding pharmaceutical industry, and has earmarked 3.5 million United States dollars worth of material and equipment toward this end. It is hoped to stimulate the manufacture in China of vaccines, DDT and penicillin.

One of the smallest phases of UNRRA's medical programme had to stretch the longest way. That is the dental programme which was allotted 154,869 United States dollars. Stress was laid on the training of qualified dentists of which China has only 300, the port cities and their foreign dentists included.

For this purpose UNRRA procured modern dental textbooks. Dental equipment brought to China includes a large number of dental X-ray machines, some dental units,

chairs, cabinets and drills and medicines. Of the total of dental supplies programmed 210,813 pounds were distributed to "end users" by August this year. Of this amount 50% went to the city of Nanking, 14% to Shanghai and 8% to Peiping.

China is not yet capable of using much of the equipment introduced by UNRRA. The only dental college in China is attached to the West China Union University in Chengtu operated by Canadian missionaries, although UNRRA dental specialists instituted training courses at a university in Peiping. Dentally most hopeful is Formosa, which received 7.7% of UNRRA dental supplies. There are 500 qualified dentists operating in Formosa, and they are very short of supplies. UNRRA's eighteen dentists travelled far and wide throughout the vast interior, spreading their knowledge and making their supplies contribute the maximum benefit to the largest number of people.

UNRRA medical men visited the far north and the deep south on survey trips to see what could be done for China's ailing masses.

Their opinion is that China as a whole has as yet not realized the importance of modern hygiene and progressive public health measures, but that in the past thirty-six years, despite adversities of war and internal upheaval, and with the aid of UNRRA's medical rehabilitation programme, a firm foundation has been laid for a public health system which in time will benefit four hundred and fifty million people.

THE ORGANIZATION OF MODERN MEDICINE IN CHINA.

By H. OWEN CHAPMAN,¹
Bathurst.

CHINA has always been culturally so remote from Australians that it is hard to realize the time is fast approaching when the march of events will make it obviously desirable to lift the iron curtain, and when a more intimate and friendly intercourse will be established with mutual advantage. And this is nowhere more true than in the realm of medicine. Already there are Chinese nurses gaining further experience in Australian hospitals; and Chinese doctors will be eager to attend for post-graduate study in Australia as soon as the organization of our classes warrants it. For many years there have always been a few Australian doctors and nurses working in China, and their number is likely to increase in the future. Finally, the aeroplane has brought certain of the diseases of China quite uncomfortably closer to us than they ever were before. It is worth while for Australians to know something of the development of modern medicine in our great neighbour over the sea.

It is now a little over a hundred years⁽²⁾ since medical missionaries in 1835 first brought modern medicine to China,³ which was then, and for many decades remained, a virgin field for their cultivation. The ancient system of Chinese medicine was, it is true, in occupation; and so vast is the population that to this day the great majority of the people have no other treatment for their illnesses. But in spite of the fact that its voluminous pharmacopoeia contained some drugs of great potency and therapeutic value and that some of its practitioners were skilled in their use and shrewd in prognosis, its teachings were so doctrinaire, empirical and divorced from fundamental facts and the great majority of its doctors so ignorant, ineffective and commercialized, that modern scientific medicine from the first made steady progress. There was no prestige and authority of a ruling caste to support it as in India and elsewhere in the British Empire; it could only advance as it proved, step by step, in the face of one of the most

conservative and prejudiced societies in the world, its value and its superiority over the ancient system. At times it was held up by officially organized opposition, but it was assisted by the sound judgement of the Chinese people in assessing values.

First in surgery and ophthalmology, then gradually and slowly in other departments, first in the port cities of the coast and great rivers and so steadily on to the outback towns, first amongst the men and then amongst their womenfolk, in the homes of the rich and poor alike the medical missionaries won their widening way. The results of their medical work gained a hearing for the gospel they preached; their personal character and the teachings of Christ on which it was based inclined the people to trust their bodies to the foreigners' care. The two activities thus went hand in hand as in Europe in the Middle Ages.

The work in any new centre would begin with an out-patient clinic, and many of the doctors in the early days did a good deal of itinerating work; but in nearly every case, as soon as practicable, they founded hospitals for the reception of in-patients, an utterly new conception in China. At first these patients were tended by their relatives, but gradually coolies—embryo ward orderlies—were trained for this work, and more intelligent young men were chosen as "hospital assistants" to help the doctor in all his activities from the changing of dressings up to dispensing, anaesthetizing, operating and business management.

This seems a far cry from the Australia of today. But as late as 1906 there was an "instrument man" who used to take precedence over all the sisters at the Royal Prince Alfred Hospital operating theatre in Sydney; and there were two male nurses in the venereal wards at the Coast Hospital (now the Prince Henry Hospital), who, in addition to being responsible for the order and cleanliness of their wards, used to do most of the circumcisions and carry out a good deal of the medical treatment.

Modern nursing in England first began in Saint Thomas's Hospital in 1860 soon after the Crimean War; but it was not until 1884 that the first of the missionary nurses began to appear in China, and only in the early years of this century that they began to spread widely among the mission hospitals. True to type, they soon started to train their own pupil nurses. At first, because of social conservatism, it was difficult to enrol girl probationers, and old women served in the female wards; but boys were more easily secured for the male wards and proved a great advance on the old-fashioned coolies. They were literate, intelligent and eager, were given systematic lectures and teaching in addition to their practical training, and at the end of the course sat for an examination for a hospital nursing certificate, or sometimes for one given by a local group of hospitals.

About the beginning of the century girls began to offer in increasing numbers for the work; but by 1909, when the Nurses' Association of China⁽²⁾ was founded, they were still not nearly as numerous as the boys. The 1926-1927 revolution; however, brought with it an astonishing new freedom and independence for women, and as a corollary girls began to be used more and more widely in the male wards. Today boy nurses have almost disappeared from the field that for half a century they occupied so well. During the Sino-Japanese War a large number of them enlisted in the various medical corps of the national armies where their experience and initiative won for them positions of high responsibility, and they were of invaluable assistance to the nation's war effort.

The leaders of the nursing profession who founded the Nurses' Association of China were mostly American and British nurses; and the curriculum, as also the conduct of the nursing schools, corresponds with that in these countries, the association publishing a complete system of Chinese textbooks, either translated or specially written for the purpose.⁽³⁾ By 1930, however, the membership had already become 90% Chinese, and the leadership also was rapidly passing into Chinese hands. This was only as it should be, and during the subsequent eight years of warfare (1937-1945) the Nurses' Association of China has gradually become a subdepartment under the Government Depart-

¹The author was for some years medical superintendent of the Union Hospital, Hankow, Central China.

²Actually they were preceded by fifteen years in Macao by two philanthropically minded surgeons of the East India Company.

ment of Education. The foreign nurses in the association, though still invaluable in maintaining standards of training and ward work in their own hospitals, have now little or nothing to do with central administration.

The Nurses' Association of China is of good standing in the International Council of Nurses with which it affiliated in 1922. In 1915 it undertook what soon developed into responsibility for the nation-wide training, examination and certification of general nurses. Up till the revolution of 1926-1927 the great majority of its members came from the Christian hospitals, but since then there has been a rapidly accelerating influx from the training schools of government and a few private hospitals, the total membership in 1942 reaching eight thousand. The personnel in the best of the hospital training schools has nothing to fear from comparison either in native ability or in morale with that in corresponding schools in Australia; but there has not yet been time to build such cadres of senior and experienced charge nurses as are found in the hospitals here.

The development of a national medical profession has proceeded along somewhat similar lines. The first doctors to be trained in modern medicine in China were chosen from the best of the "hospital assistants". After assisting the missionary doctor for years in the round of his hospital work in all departments, with continual coaching and training in clinical medicine and surgery, these men, as they proved capable of it, progressively took over independent medical work. Many of them showed good clinical judgement and a high sense of responsibility. They may be compared with the apprentice doctors of Britain early in the nineteenth century and the apprentice dentists of Sydney towards its end.

But the Christian hospitals by the end of last century were outgrowing this stage; and then there was nothing for it but to assume the formidable responsibility of providing medical schools to train a Chinese medical profession. It is true that some Chinese even as early as this had already gone, or been sent, abroad to study medicine in Britain, the United States of America, Japan and other countries; but because of linguistic, financial and other difficulties these were a mere trickle and altogether too few to meet the current needs. There were also in China early in this century a number of provincial and other government "medical schools", and several of these turned out large numbers of graduates. But they were almost uniformly staffed by teachers trained in the schools in Japan, and professionally were of a very low grade—hopelessly weak in the basal sciences and with their medical subjects taught as doctrinaire scholastic courses, accompanied by very little clinical work and sometimes by none at all.

In 1887 the medical missionaries⁽¹⁾ throughout China had organized themselves in the China Medical Missionary Association, which became the China Medical Association in 1925 when its membership was first opened to non-missionary foreign doctors, and the Chinese Medical Association in 1932, when it amalgamated with the National Medical Association, a smaller and more recently formed body of the leading modern-trained Chinese doctors. The Chinese Medical Association right from its beginning as the China Medical Missionary Association has been the representative body of modern medicine in China, just as the British Medical Association has been in Australia, and it has always been a strong and closely knit organization. At its biennial conferences, which have usually been well attended, in addition to discussing the latest developments in scientific and clinical work, it has exercised a very real directive influence on medical policy and development throughout the Republic. Its journal, *The Chinese Medical Journal*, is now in its sixty-first year, thus antedating *THE MEDICAL JOURNAL OF AUSTRALIA* by twenty-seven years. The membership of the association in 1926 was 588, in 1933, 1703, and in 1941, 3345, the missionary members being by this time reduced to about 350.

It was towards the end of last century that the China Medical Missionary Association gave its attention very seriously to the problem of providing qualified Chinese doctors to staff its widespread hospitals throughout the

country, where the work was expanding beyond the capacity of the missionary staff. A survey of the situation made for it in 1897⁽²⁾ showed that medical training of one sort or another was being given in thirty-nine of the mission hospitals; but this was defective in a direction precisely opposite to that in the provincial government schools. It was nearly all of the apprentice type, and there were scarcely half a dozen hospitals where there was any serious attempt at systematic teaching.

The association thereupon set out to close down or amalgamate the struggling and inefficient efforts at training and to concentrate on the establishment of strong, properly equipped and staffed medical schools; and this policy was pushed with such enthusiasm and success, and backed so solidly by the missionary societies at the home bases, that within the short space of twenty years China was provided with a strategically placed network of these institutions. Several even then proved to be too weak to survive and, under the advice of the China Medical Missionary Association, were also closed down or merged with other schools. But the following³ became firmly established, having been founded at the respective places and dates stated: Saint John's (Shanghai, 1896), Lingnam (Canton, 1901), Peking Union (Peiping, 1906), Cheeloo (Shantung, 1909), Moukden (Manchuria, 1912), West China Union (Szechuen, 1914), Hsiang-Ya (Hunan, 1916).

Of these the Peking Union Medical College was taken over by the Rockefeller Foundation and the Hsiang-Ya Medical School has been cooperating in a government scheme for training B grade doctors in a shortened and more exclusively practical training course of four years. But at the beginning of the late war in 1937⁴ there were still the remaining five Christian university medical schools giving a full modern course of training and turning out altogether something over a hundred graduates a year. There is no objective criterion by which the ability of these young graduates can be judged; but it may be said that the better men and women coming from these schools have been found in practice roughly to measure up to the average standard of graduates from the Australian universities.

The task, however, that had been undertaken by the China Medical Missionary Association comprised much more than merely the foundation, staffing and maintenance of the medical schools. At first it was difficult to find sufficient students well enough grounded in general education and the pre-medical sciences to reach the matriculation standard that was required. But the rising grade of the work in the Christian high schools and universities, and later in the State schools as well, has gone far to meet this deficiency.

The next difficulty was one of nomenclature. Amongst the ancient Chinese characters, which are ideographs, there were naturally none to represent modern scientific terms. Representatives therefore of the China Medical Missionary Association drew up a vocabulary embodying new Chinese terms for the medical sciences and published a medical dictionary⁽⁵⁾ which, after it had been revised by a government commission, became the basis for the terms finally approved by the Board of Education. A complete set of textbooks⁽⁶⁾ for all departments had also to be written or translated and kept up to date by repeated revision, though nowadays graduates are often able to read more or less fluently medical books and magazines in the English language.

Finally, if these doctors were to be able to hand on to China the lamp of inspiration which Western medicine received from the mediæval Christian church, then the mission hospitals had to be raised to and maintained at a suitable standard for grounding the young graduates for several years in the practice of this new system of medicine, as strange and revolutionary for China in its ethical and religious background and implications as it was in its scientific method. This Christian tradition

¹ The name given is that at present in use; but the date is that at which the first unit of the medical school was founded, sometimes under a different name.

² As a war emergency measure some of these schools had later to be moved to provisional sites far inland, while others closed.

inherited by Western medicine, invaluable though it is, is apt to be completely overlooked and forgotten by its heirs until, in some such land as China, they are brought stark up against an old-established profession in which it is entirely lacking. Here, where medicine was by no means an honoured and liberal profession, but at best a rather shabby and venal business, too timid to accept responsibility and too disreputable to be trusted, an entirely new tradition had to be planted, nurtured and established in the young and rising generation.

There were practically none but the mission hospitals to render this service; and it is this which has made their position one of outstanding significance for the Chinese medical profession of today and tomorrow. (It is, for example, the lack of this factor in the history and constitution of the Japanese medical profession, which was trained in pagan schools and hospitals, that accounts for some of the marked contrasts in their attitude towards their patients compared with that found in China.) Dr. S. M. Sze, the general secretary of the Chinese Medical Association, early in the war estimated in an official memorandum⁽¹⁾ that out of a total of 367 civilian hospitals in China of 20 beds and over there were 231 Protestant mission institutions, 43 Roman Catholic institutions, 19 Red Cross, 29 provincial, 18 municipal, 8 national and 19 others. This Protestant mission quota of 63% is widely distributed to the furthest confines of the Republic, though a large number, not yet accurately determined, have been looted or destroyed during the ravages of the Sino-Japanese and the civil wars. Thirty-five years ago they were almost the only hospitals in China; but during this time, and especially in the period between the 1926-1927 revolution and the outbreak of war ten years later, the rising interest in public health has accounted for the additional development indicated in the above figures.

This great development of hospital work has not been merely quantitative. There have been two surveys of the hospitals of China made for the Chinese Medical Association and its predecessor, the China Medical Missionary Association, an earlier in 1919⁽²⁾ by Dr. Harold Balme, the dean of one of the two foremost medical schools in China, and a later by Dr. John A. Snell in 1934.⁽³⁾ These, and especially the latter, were based on very exhaustive and detailed inquiries into their organization, physical plant, equipment, staff, records and statistics, finance and plans for future development. The 1934 report indicates that "the mission hospitals are by far in the lead in numbers and distribution" and that they still provide at this date about 75% of the total number of hospital beds in China, averaging about 80 beds each, and represent about 80% of the total sum invested in the work. We may safely take it then that the conclusions of the report on the hospitals in the country as a whole will hold good approximately for this, the major group amongst them.

It is quite impossible within the scope of this article to give any detailed account of the extraordinary advances that had been made in practically every respect during the fifteen-year period between the two surveys; but some general conclusions that are drawn by Dr. Snell give an indication of the progress. "While mission medical stations have perhaps decreased in number, they have intensified the central hospitals; and the present valuation of the work is four to five fold greater than when Balme made his survey", the average value of these establishments now being in the neighbourhood of NC\$200,000.³ He concludes:

The most striking impression of this study is the phenomenal growth of hospitals during the last twelve

years. This growth has not been in numbers of hospital beds, but rather from within the hospital: a marked increase in valuations, in equipment, in professional staff, in nurses; a great improvement in the laboratory and the amount of work done in it; an improvement in the quality of nursing and training of nurses; and a very great improvement in the keeping of records.

Although, for the purposes of this paper, the hospitals in China founded and maintained by the Christian church have been rather sharply distinguished from their sister institutions under government management, it must not be inferred that there is any cleavage or rivalry between these two groups. The former group has a century old history and tradition; the latter began to be of significance only during the last two decades. The former, because of its historic role, its commanding position in distribution, plant, equipment and staffing, and the surprising energy with which that position was extended and strengthened during the twenty years preceding the Sino-Japanese war, may be expected for some considerable time yet to continue its lead in maintaining major therapeutic centres for the people and in the training of medical, nursing and other personnel.

The development of the latter group is at present very largely held up by the life and death political and military struggle between Communism and Conservatism, which is likely to last for at least several years more. But because of the immense resources that eventually will become available to the Government of a unified China, and of the enlightened and enthusiastic interest which Conservative and Communist Governments alike have already shown in the health of the people, the government medical service is, of course, destined later on far to surpass that of the Christian forces in China in the scope and importance of its work. Indeed, it is bound ultimately to assimilate and incorporate it in a unified national service, as has happened long ago to the mediæval Christian hospital system of England. In the matter of staffing this process of assimilation is already well advanced and is going briskly forward, for a great many doctors and nurses who have received their early training in Christian hospitals are now to be found in government institutions, where their services are eagerly sought after.

There is one other feature of the situation which should be noted. Whereas the prevailing attitude of the medical missionary forces has been therapeutic, the direction of the Government's attack on the problem of disease is predominantly preventive. This is the natural approach today for any government coming fresh to the task, unhampered by established commitments and prejudices; and in China it was indeed inevitable because of both the colossal dimensions of the problem and the scanty resources available to the administration. A great deal of the widespread and crippling morbidity of China from smallpox, ankylostomiasis, cholera, schistosomiasis, kala-azar and other such diseases is readily preventable, and the National Health Administration has drawn up a Ten Year Plan⁽⁴⁾ for establishing a public health network over the whole country to deal with it. It is a realistic and practical scheme which is to be built up systematically from the elementary village units to the large provincial centres; and it calls for a huge army of employees of all grades, such as doctors, nurses, technicians and local health workers. It is just here that there is opening up today an immense field for the fruitful cooperation of the above two medical forces.

The leaders of the National Health Administration, and notably the Generalissimo and Madame Chiang, have for long recognized the value of the therapeutic service and of the ethical and religious environment provided by the Christian hospitals, and of the wide educative impact which these have had on the nation. Now they are doing all they can by grants of money and goods from UNRRA sources to assist in the rebuilding and rehabilitation of those of them which have been put out of action by the war. Before the war, in addition to their own hospitals, they already had several medical schools and a number of schools of nursing and public health technical training colleges, while their Ten Year Plan envisages an enormous increase in these facilities, some of which are already under

¹It should be noted here that throughout this paper the whole description up to this point of Christian hospitals and their activities, and those of missionary doctors and nurses, refers exclusively to the hospitals and missionaries of the various Protestant churches. Roman Catholic medical missionary work has been excluded from this survey merely because it has developed along different lines from those of the Protestant churches, and so is not directly associated with the system which the latter have organized. It has aimed more at establishing health centres or "dispensaries" than well-equipped hospitals.

²This was equivalent to about A£17,000 at that time; but, because of the low cost of land and buildings in China, it represented several times as much as it would have done in Australia.

way. But they are also urging the missionary societies to resume and push on with their former hospital work and professional schools. Especially they are insisting with impressive emphasis that each hospital should do its utmost to train future workers of the various grades needed for the government health service.

The missionary doctors and nurses on their part, together with their Chinese colleagues, are realizing in this invitation an opportunity for what may prove to be a crowning service in their contribution to modern Chinese medicine.

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THE EDUCATION OF DEAF CHILDREN.¹

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The majority of deaf children either are born deaf or lose their hearing before patterns of language and speech have been established. By deaf children, I mean those who do not have sufficient residual hearing to enable them to understand speech successfully, even with a hearing aid, without special instruction. And even those children who lose their hearing after patterns of language and speech have been firmly established suffer more deterioration of speech than do hard-of-hearing children. On the other hand, a congenitally deaf child is not dumb. His mechanism for speech is normal, but he has simply never been taught to speak.

In their formative years children learn speech and language, both reception and expression, primarily through the ear. Pronunciation and accents learned as children are likely to be retained throughout life. The Scot who comes to Australia early in life is always recognizable and even his children speak an English that is more allied to Scotland than to Australia. In the same sense our use and understanding of language naturally depend at first upon hearing. The two year old deaf child has no useful verbal language, whereas the hearing child of the same age has begun to develop a meaningful spoken and aural vocabulary. Hence, means of communication with the deaf child must be developed through systematic and in many instances laborious procedures.

The mental abilities of deaf children as a group are equal, except for language, to those children who can hear. Their academic achievements may, of course, be far inferior if they have not been taught to communicate with others. The old idea dies hard that the deaf are fundamentally inferior, stupid, and "dumb" in the popular slang sense of the term; but appropriate tests of intelligence and of specific mental abilities now show that apart from obvious limitations in the field of language and an equally obvious retardation in the education of those who have not been taught speech and speech reading in their early years, the deaf are normal mentally. Most tests demand an understanding and use of language, but a fair test for the deaf is the non-verbal type. A recent survey in America with such a test gave an average result of 102 to 107, the intelligence quotients ranging from 62 to 151. The results show that in general intelli-

gence, exclusive of skill in the use of language, the deaf as a group are normal. In tests of academic achievement, in which no allowance was made for the special handicap of deafness, a two to three year educational retardation was shown. The greatest retardation was noted in tests of reading and reasoning.

To start the child along the educational road, it is necessary to equip him with the tools of communication; and to keep the road clear, it is essential to keep those tools sharp by regular practice throughout and sometimes beyond his school career. These tools are speech, speech reading and language. The first enables the child to express his thoughts orally, the second equips him to understand the spoken thoughts of others, and the last is the basic instrument on which the first two depend. These skills are best taught to the deaf child by taking advantage of all his available senses. Vision is the most important, of course, but touch and the sense of movement are of great assistance. If the child has any residual hearing, that too is utilized to the full.

In teaching speech, we must take into consideration the deafness of the child. The teacher must realize it and make allowances for it. At the same time only really necessary concessions must be made or the unnecessary indulgence will inevitably over-specialize speech, which under any circumstances differs in certain respects from that of the hearing child. Everyone realizes the value of speech to the deaf, whether purely as a means of communication or for the indirect benefits on the general attitude towards life.

Much has been done to improve the technique of speech teaching, but it must also be admitted that the deaf are still capable of far better speech attainment, and this can be achieved only if the teachers have a thorough knowledge of the subject and are 100% enthusiastic. What deaf child if allowed his choice would wish to be deaf? And what deaf child who had understanding of the nature of his defect would not wish to be taught to speak? Have you ever found a parent who did not wish his child to be able to speak, if only a little? By emphasizing the need for better speech we must not fail to recognize that the first necessity of the child is language—that speech is but the spoken form. But speech can be the vehicle for the development of language.

Since its inception the teaching of speech in our schools has been vastly improved, but it has improved only in the face of much opposition. Today there is a new swing of the pendulum, and questions and doubts are being raised again. But that is a healthy outlook, for opposition that is reasonable and ably directed does good rather than harm. We can generally assume, though, that the majority of deaf children can acquire speech in varying serviceable degrees.

The partially deaf and those with a large degree of residual hearing can acquire normal speech; while even the congenitally deaf can acquire speech that is intelligible. Let us not condemn this speech because it lacks intonation, pitch or rhythm. It is more than ever necessary that teachers from their own observations, studies and experience should form their own judgements and should avoid rash and premature conclusions that have gained the public ear. There are those who would have us believe that they have found the educational panacea suitable for all deaf children, regardless of their individual needs, intellectual ability or history. This cure varies of course with the particular preconceptions of the proposer. The fact remains that no one method, whatever it is, can fit all the different types of children brought into our schools. Others judge a method by its failures and disregard its successes, forgetful of the fact that every human effort could by some showing be condemned. Let us acknowledge our failures, admitting that the successes justify the method and the failures only indicate the directions in which further advances are necessary. No method that has produced plenty of successes can be fully described as a failure.

It is time that the unscientific quibbling about the merits of teaching speech as opposed to finger spelling was nailed down as worthless. Both methods are necessary and have come to stay. In its proper application

¹ Read at a meeting of the New South Wales Branch of the British Medical Association on April 29, 1948.

either may be superior to the other; but neither is nor can be the universal panacea for all the educational ills of deafness. The real and only vital question is not the superiority of one method over another, but the incidence of either according to the psycho-physiological indication of the individual deaf child. If we are capable of diagnosing the educational needs of each child as he comes into our school, then we shall know the method of instruction to be adopted. This demands the skill, science and art of teaching, and will give us ultimately a correct classification of our children. When this has been obtained, only then shall we have heard the last of the inane generalities that are so glibly uttered, and the deaf child will be educated according to his needs.

What I wish to stress in my paper is that speech is now and always will be taught to deaf children. It is the duty of all of us concerned in their education to develop that speech to the greatest degree of efficiency.

The movement in favour of earlier education is a recognition at last that all development, whether of body or mind, whatever method is employed, depends for its fulfilment upon its application at the proper period in life. If natural potentialities in the child are to realize themselves, then the development of body and mind must coincide. There are many who do not attain this end. If we are to prevent this failure, the thoughts of all teachers of the deaf turn naturally to the infancy of the children. How that period is spent influences tremendously the ultimate results of education viewed at any point of life.

Professor Ferreri once stated that the "results obtained in oral instruction stand in direct relation with the early teaching of speech—the earlier the better". Results already obtained have proved this. The instinct for speech in the deaf child must not be allowed to become dormant, and as soon as possible after it has been found that a child is deaf, he should be trained to watch the mouth. With understanding of facial movement come attempts to utter words, and if this training can be undertaken intelligently by parents in the home, there is no finer preparatory training of any kind. It matters not how imperfect the speech reading and the speech may be, they form the basis of future language development, for speech is language. The addition and supplementing of further forms become a comparatively easy process, as it is also a natural one. Even as speech hearing precedes speech in a normal child, so speech reading should precede speech in the deaf. There must be impression before expression. It has been proved that by commencing the education of the deaf child in this very early way, speech is more easily and more naturally acquired by imitation, and the phonetic element in articulation is much less serious.

Dr. and Mrs. Ewing have made tests in the clinic at Manchester University, and they have found that the voice of a deaf child of one year of age is not noticeable by its abnormalities. He uses voice rhythmically, and he can vary quite naturally the pitch and the intensity, although it must be admitted that the variations are fewer. His laugh is uttered in a quiet contented manner, while immediate attention is gained for his more urgent needs by the use of much louder and more strident tones. He coos and gurgles in much the same manner as a normal child. It is not until after the age of eighteen months or two years that the deaf child tends to lose this wide range of vocal expression, and if left to himself he uses voice only to express his more extreme emotions. There is a tendency on his part to become quieter and to lose interest in his voice. Generally his voice begins to take on a strained quality and his vocalization becomes abnormal. He makes fewer sounds and these less often. He finds that he can attract attention in other ways, such as by pushing and pulling, grabbing and pointing, and by gesture. Where the parents are uninstructed and lacking in intelligent appreciation of the child's outlook they respond to these movements of the child and even act in a similar manner so that gesture very soon takes the place of the use of voice by the child. We have all seen this attitude of the child, and to the child, and we can readily make allowances for it; but it is

essential, too, that we should use every means in our power to prevent it.

The babbling of a normal baby soon develops into speech, and we regard the language as indicative of the mental behaviour and the articulation as social behaviour, both conditioning and accompanying to a large extent the mental development. The type of language used and the manner of its expression in speech form are not normally the fruits of teaching, but they do give evidence of learning. This must be our attitude in respect of the development of speech in the deaf child, and our first task must be the preservation of his use of and interest in his vocalizations, even though he cannot hear the sound of them. We know that once the deaf child ceases to use his voice the natural intonation can never be recovered. In the first place it is an expression of his feelings, and he can ring the changes from pleasure to displeasure, comfort to discomfort, and if we can encourage the use of them by constant repetition these sounds will become automatic and will eventually form the natural basis for the development of speech. The normal child develops speech as a result of an inner urge for expression and of imitation of auditory impressions gained through personal contact. The deaf child has the same inner urge for expression and in the early stages realizes it by vocal expression. Whether it will develop in the form of articulate speech depends on the intelligent appreciation of the needs by people in his environment. Too often they are concerned only with his bodily comfort and neglect altogether his mental comfort. They do not realize the extent of his handicap, even though aware of its nature. It is obvious to me that a step this association must take is to bring to the notice of the Government the need for deafness in children to be a notifiable defect in order that we may educate parents in the correct procedure. The earliest we can hope to get the children into a nursery school will probably be three years of age, and in the meantime the spontaneous use of voice will have been lost. We need to educate parents how to encourage the deaf child from eighteen months onwards to use his voice and to watch the faces of others.

Further consideration will also show that the critical time in the life of any child is between the age of two and five years. It is during this period that the hearing child acquires the all-important ability to understand spoken language and to speak. For many reasons this is the vital stage in intellectual development, and it will be apparent that if a deaf child is to make any progress comparable with that made by the hearing child, he must not miss the important period in the formation of his personality. These are the most impressionable years, and the deaf child cannot begin at five where the hearing child started at two.

When the deaf child cries, shouts or laughs the vocal and speech organs act automatically, but when voice is produced at the wish of someone else a new element enters the mental and motor activities involved. The natural utterance becomes modified by learning. The development in a hearing child is exactly the same, for his vocalization merges into babbling and his babbling into speech as a result of learning to comprehend and to use words in his thinking and in his expression of thought. If we wish speech to be at all natural in the deaf, then we must develop it in the same order. There will, first of all, be spontaneous use of voice, and to achieve anything at all later on this must be encouraged. It will be of far greater stimulation to his further efforts than talking to the child. It must be stressed here that the deaf child's use of voice is instinctive, but his attempts at words are as a result of learning. It becomes the teacher's duty then to stimulate and encourage the child to speak by constant observation of her face and to make the spontaneous effort to imitate these movements. Until this happens no articulation exercises will be taken, but the use of voice in games will be encouraged at all times. No formal voice training or exercise will be given, but the teacher watches every opportunity to provide for the spontaneous use of voice. Vocalization, babbling and lip-reading of words lead to speech in a child who is deaf. Articulation will need to be taught; but

speech as such can never be taught. It must become part of the child's mental and social experience and must be the result of an inner urge.

I have so far been concerned with maintaining the natural outlook and development of the deaf child through retention of the speech instinct and encouraging him to use it as the means of contact with other people. But without the background of language this vehicle can become just meaningless. We can teach a parrot to speak, and deaf children too have been taught to articulate correctly without being aware of the meaning. In the development of language we begin by associating an idea with a word, and once the recognition that the word represents the thing is obtained, so the development of language has begun. To teach the word "jump" the teacher jumps and associates the action with the word. To teach the word "ball" the child is shown a ball, then the word printed on a card and the object are shown together. Other words are added and gradually a small and limited vocabulary is built up. This is classified into objects, persons, actions, places, colours, qualities, numbers and so on. The next stage is to arrange these words into ordinary language sequence. From the simple elementary language we expand and extend gradually and steadily, adding to the pupil's powers of recognition and expression of language. At no stage do we limit the language work to his powers of reproduction. At all stages we give him experience in language beyond his power to originate and strive to make language its own interpreter. But abstractions and the complex forms of language and grammatical construction present much greater difficulties, and even an experienced teacher may be amazed at the limited vocabulary and the literal interpretations of words by the deaf child. Deaf children do not learn to play with language, with the shades of meaning of words, and with the inflection of the voice. They do not easily develop the short cuts from lower to higher levels of thinking that are absorbed unconsciously by the child who hears language all day long.

However, through continued contact with vocabulary and the forms of language and through experiences constantly translated into language, the child's command of language is slowly but surely expanded and enriched. Other subjects of the ordinary school curriculum must wait until the pupil has a sufficient knowledge of language to receive instruction in them. Geography and history and all other literary subjects depend entirely on the power of language, and cannot be attempted before a reasonable command of language has been developed.

One of the recent developments in the work of the education of the deaf has been the considerably greater attention given to the use of hearing aids. The help that they can give to individuals depends on the auditory discrimination possessed, and that in turn depends upon the amount of loss and the stage in life at which it originates. A basic distinction must be made between the child who has never heard adequately and the person whose loss arises after auditory discrimination has been learned. When the hearing impairment is present at birth or occurs very early in life, the child will not go through the normal stages in development of discrimination.

Even a child who is later found to have some residual hearing acquires the habit of behaving as though he were completely deaf. Sounds loud enough to be audible to him occur so infrequently that he never associates them with life, and instead of assigning meaning to the few sounds he hears he disregards them. This type of child can be taught to become aware of sound and to develop a certain amount of sound discrimination, and here a hearing aid can be of extreme use. There is the child who is not deaf to all frequencies in the speech range. He is usually aware of noises because he can hear a few of the frequency components. He faces confusion because so many sounds are indistinguishable because the dominant frequency is missing. What he hears he reproduces in speech forms, and the result is garbled and very often meaningless. He becomes known as queer and retarded, and he finds the world a very hostile place. Again he can benefit by auditory training. Both these subjects,

however, are vastly different from the deafened adult, in whom we have a fully developed mind with mental images of all the necessary sounds and a background of language. If he can gain only key words or the gist of the conversation, then he can guess or fit in the remainder. To him a hearing aid is of inestimable value; but to hold his success as an example of what can be done for the deaf child is totally wrong. Any child whose hearing is so defective that he has been unable to acquire speech or only very defective speech, needs more than just a hearing aid. He needs the skill of the specialized teacher to train his residual hearing, and he must acquire lip-reading. Neither one will give results as good as a combination of the two, but together they have great possibilities. As I said earlier in my talk about the teaching of speech to all deaf children, so now I would emphasize the need for caution in the expectations of what hearing aids can do for deaf children. To think that they can be fitted to all children, and that these children will thus automatically become normal, is more than wishful thinking; it is detrimental to the child.

In conclusion, I would urge that first and foremost we need early diagnosis of the deafness of the child, training of the parents in the correct approach to the child, the establishment of nursery centres to retain the normality of the child, and above all, classification of the children into their appropriate groups.

Reviews.

A YEAR BOOK IN GENERAL SURGERY.

In his introduction to "The 1947 Year Book of General Surgery" Evarts Graham, the editor of the volume, points out that in 1947 American surgical literature returned largely to a peace-time plane.¹ On the continent of Europe there have been fewer noteworthy contributions; continental surgeons except those in Sweden have been severely handicapped. Graham pays a tribute to the tenacity of Great Britain and to the way in which teaching and surgical treatment have been carried on. He points out that the Royal College of Surgeons in London is probably as active as it has ever been.

The book itself is full of interest. It is planned on the usual lines, being divided into several sections. The first section on anaesthesia and analgesia deals successively with curare, inhalation anaesthesia, intravenous anaesthesia, spinal anaesthesia and refrigeration anaesthesia. In the section on aseptics and antisepsis the subjects discussed include the use of streptomycin, penicillin, tyrothricin and bacitracin in the treatment of infections. In the section on operative technique, some useful appliances are described. One is a portable bedside scale for the weighing of patients, another is a mechanical abdominal retractor, devised by Wexler. In the section on wound healing several references are made to the administration of protein in surgery. The first article discussed is by Robert Elman, whose advocacy of the intravenous use of protein hydrolysate is described by the editor as a contribution of major importance. In the section on blood vessels the surgical treatment of *ductus arteriosus* is mentioned. The indications for operation are given and complications are described. The surgery of coarctation of the aorta is described and also anastomosis of the aorta to the pulmonary artery. In the section on bones a fracture of the *os calcis* is described, together with a circular traction ring devised by Harris, of Toronto. On this traction ring three points of traction can be arranged and the direction of each can be changed within a considerable range. The traction ring is used together with Kirschner wires. Perhaps the most interesting section in the book is that devoted to the chest. Pulmonary embolism, infections, tumours and technique are dealt with, together with the surgery of pulmonary tuberculosis. A good deal of space is given to total pulmonary decortication, work by Samson and Burford being reviewed. The technique of the procedure is described in some detail, and the editor remarks

¹ "The 1947 Year Book of General Surgery", edited by Evarts A. Graham, A.B., M.D.; 1947. Chicago: The Year Book Publishers Incorporated. 7" x 4½", pp. 734, with many illustrations. Price: \$3.75.

in a footnote that the revival and extension of the principle of decortication is perhaps one of the most important surgical contributions of the second world war. A series of 196 lobectomies performed at Kennedy General Hospital from 1943 to 1946 is reviewed. There was one death. All but four patients were under forty and the majority were under thirty years of age. The editor points out that when the operation is performed on older patients who have had extensive suppuration for years, the results are not so good. Three articles on lung surgery in pulmonary tuberculosis are reviewed. There is an article on abdominal surgery from a general point of view and sections are devoted to special abdominal organs and regions. Vagotomy receives special mention. Anatomical variations of the vagus nerves are described and reference is made to the use of vagal resection in peptic ulcer. John Devine's clinical study of paralytic ileus is mentioned. Hirschsprung's disease has several pages devoted to it and reference is made to familial polyposis of the colon. In the section on spine and cord intervertebral disks and the symptoms caused by them are discussed and reference is made to plionidal sinuses. In the section on the upper extremity some important work on reconstruction of the hand is described and illustrated. The section on the lower extremity has useful articles; one in particular which attracts attention deals with fourteen cases in which the patella was excised for fracture. All surgeons and many general practitioners will find this book invaluable.

A YEAR BOOK OF PÆDIATRICS.

"THE 1947 YEAR BOOK OF PEDIATRICS" is dedicated by the publishers to Isaac Arthur Abt, who has edited this particular year book for the past forty-six years and has now reached his eightieth birthday.¹ The book, in the editorship of which Arthur F. Abt now collaborates, is a fine achievement in which its editor obviously takes pride. Editorial comment, although sparse, is always to the point, and a wide field of literature is covered. The arrangement is simple: sections on the newborn and on infant feeding are followed by those on metabolism and nutrition, the gastro-intestinal tract, infectious diseases and poliomyelitis; the main mass of material is then grouped according to the anatomical and physiological systems with concluding sections on therapeutics and toxicology, allergy, surgery and miscellaneous subjects. The individual papers abstracted bring the reader in touch with practically every subject directly or indirectly associated with paediatrics. Prominent considerations are the modern investigation and surgical treatment of congenital cardiac disorders; the use of streptomycin in paediatrics; the relationship to congenital defects of rubella and other infectious diseases (papers are included by L. P. Winterbotham of Brisbane and by Charles Swan, A. L. Tostevin and G. H. Barham Black of Adelaide); the management of asthma in childhood; "Benadryl"; the use of γ globulin in the prophylaxis of infectious diseases (including a paper by S. G. Anderson and W. M. Ket of Melbourne); and a great many other matters. It will be most unfortunate if dollar problems deprive paediatricians and doctors in general of this splendid summary of advances in the management of children's diseases.

PSYCHIATRY AND THE SCHOOL CHILD.

In the "Psychiatric Examination of the School Child", by Muriel B. Hall, the author has packed a wealth of detailed information into a comparatively short book.² Though intended primarily for the general practitioner, it avoids both medical terminology and psychiatric jargon as far as possible, and could be read with advantage by all those concerned with the social and mental welfare of children.

The first chapters deal with general investigation of the child and stress is laid upon an adequate physical examination. In the investigation of intelligence, the author relies upon the Revised Stanford-Binet Intelligence Tests, with performance tests added if necessary. This test is adopted as being the most reliably standardized, and because it provides opportunities for assessing various emotional and temperamental attitudes. The author appears to value

highly the Goodenough drawing test, which as yet is not widely used in this country.

Disorders are classified under three headings—those relating to mental development, including educational problems; those due to physical disorders; and those due to mental disorders. It is pointed out that a gifted child may easily become a greater problem than one that is mentally deficient. The necessity of excluding high-tone deafness as a cause of scholastic retardation in an apparently intelligent child and the existence of congenital word-blindness are emphasized. The glyconic reactions responsible for or associated with many of the emotional reactions of the child may open a new field of therapy to many. Trauma, chorea, meningitis, encephalitis and congenital neurosyphilis are briefly but adequately dealt with.

The chapters dealing with temperamental states and personality and behaviour disorders discuss at length such matters as enuresis, speech disorders, feeding disorders, piling, and the inadequate and anxious personality types. One would wish that the sexual problems of childhood and early adolescence were more adequately dealt with; a mere eight pages are devoted to this subject and there appears to be a curious reluctance and evasion in the approach to this aspect. The following chapters describe the neuroses and psychoses of childhood; the description of schizophrenia would need careful reading by those not familiar with the condition, as otherwise it might appear to label as schizophrenic any shy introverted child.

Little is said concerning treatment, as the book purports to deal with examination only; but treatment is implicit in the description of the causation of the various conditions; the "problem" of the problem child is generally the problem of instilling insight in the adults involved in the causation.

MEDICAL CASES FOR NURSES.

As stated in the preface of "Medical Cases Described for Nurses" by S. Locket, the book contains "descriptions of typical cases of common disorders which are seen in the general medical wards of any hospital".³ The author's objects in writing such a book are to provide an introduction to larger textbooks of medical nursing, and also to stimulate the nurse's interest in her work by telling her just what part she plays in the war against disease. Naturally in 88 pages only the surface of medical nursing can be skimmed, but this little book will prove of interest to all nurses. The closing chapter is devoted to a short account of the history of nursing, and it is to be hoped that in later editions the author will greatly enlarge this particular part of the work.

Notes on Books, Current Journals and New Appliances.

AN EXCITING JOURNEY BY AIR TO LONDON.

FRANK CLUNE, well known for his writings and radio broadcasting talks, has written an account of a journey by air from Australia to London and has called it "High-Ho to London".⁴ He describes "Incidents and Interviews" on this journey which was broken at many places. He begins with Darwin and goes on to Surabaya, then to Batavia and other places in Java. Then come *inter alia* Singapore, Rangoon, many places in India, Afghanistan, Baluchistan, Iraq, Iran, Palestine, Egypt, France and London. In almost all these places Clune had interesting experiences and adventures. He managed, by one means or another, to see most of the people whom he went to see. He writes short historical sketches about most of the countries and gives expression to his own decided views of what should or should not be done in each. It is all skilfully and superficially done and in an attractive way. The stickler for pure English will tire of the rough and ready slang which permeates the book, but if he takes this as part of the business he will derive pleasure from it.

¹ "Medical Cases Described for Nurses: An Introduction to Clinical Medicine for Nurses", by S. Locket, M.B., B.S. (London), M.R.C.P. (London); 1948. Edinburgh: E. and S. Livingstone, Limited. 71" x 41", pp. 96. Price: 6s. (Paper cover edition 4s.)

² "High-Ho to London: Incidents and Interviews on a Leisurely Journey by Air from Australia to Britain" with Frank Clune; 1948. Sydney, London: Angus and Robertson. 81" x 51", pp. 276, with illustrations. Price: 12s. 6d.

³ "The 1947 Year Book of Pediatrics", edited by Isaac A. Abt, D.Sc., M.D., with the collaboration of Arthur F. Abt, M.D.; 1947. Chicago: The Year Book Publishers Incorporated. 7" x 41", pp. 454, with illustrations. Price: \$3.75.

⁴ "Psychiatric Examination of the School Child", by Muriel Barton Hall, M.D.; 1947. London: Edward Arnold and Company. 81" x 51", pp. 376. Price: 15s.

The Medical Journal of Australia

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All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given without abbreviation: initials of author, surname of author, full title of article, name of journal, volume, full date (month, day and year), number of the first page of the article. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

A FINAL CALL TO PERTH.

Nothing succeeds like success. We know it and we believe it. There are many reasons why it is so. One reason is that success is a first-rate advertisement. Another is that people like to take part in a successful venture. And why not? If something that will promote welfare, bring happiness or increase knowledge is taking place and a man or woman is entitled to share in the event, he or she would be foolish, dull and unimaginative if the opportunity to share in the venture was allowed to pass. Quite often the profitable or pleasurable event can be sought and shared while it is happening. Sometimes news of all that it meant comes when it is over, and then one is apt to ask oneself why the invitation was refused and the opportunity lost. This is not a case of crying over spilt milk, but of crying because the milk has all gone to other consumers when some might have been had for the asking. For many months the sixth session of the Australasian Medical Congress (British Medical Association), which is to be held at Perth from August 15 to 21, 1948, under the presidency of Dr. D. M. McWhae, has been proclaimed in this journal, and there is no doubt whatever that the session will be successful in every way.

Success in this venture may be anticipated because of the enthusiasm displayed by everyone connected with its planning, in other words by the members of the Western Australian Branch of the British Medical Association who constitute the General Committee, and by the office-bearers and the Executive Committee. Another good omen is seen in the number of members of the Branches in the other five States who have enrolled as members. Several of the Special Groups within the British Medical Association are cooperating to ensure a satisfactory attendance at their special discussions, and in addition other bodies such as the Royal Australasian College of Surgeons and the Australian Orthopaedic Association are holding meetings in Perth close to the dates of congress so that their members will have an opportunity of attending the session of congress as well as their own gatherings. The Federal Council of the British Medical Association in Australia will meet in Perth in the week before congress starts

and the directors of the Australasian Medical Publishing Company, Limited, will hold their half-yearly meeting before the session commences. Thus few, if any, of the activities of the medical profession in the Commonwealth will be unrepresented in Perth at congress time.

At the risk of wearying those who are familiar with the congress arrangements we would point out once more that the following sections have been arranged: Medicine; Surgery; Naval, Military and Air Force Medicine and Surgery; Obstetrics and Gynaecology; Paediatrics; Ophthalmology; Oto-Rhino-Laryngology; Public Health, Tuberculosis and Tropical Medicine; Anaesthesia; Pathology, Bacteriology, Biochemistry and Experimental Medicine; Orthopaedics and Physical Medicine; Dermatology and Industrial Medicine; Neurology and Psychiatry; Radiology and Radiotherapy. Sometimes each of these sections will meet alone and sometimes one or more of them will meet for combined discussion. The plenary session will be devoted to a discussion on tuberculosis and the speakers have been chosen because of their special knowledge of the subject. While we would lay special emphasis on the scientific side of the congress activities—the papers to be read and, of equal importance, the informal discussions on the subjects of the papers that invariably take place between sectional meetings—the social side must not be forgotten. The Entertainments Committee has been active and has planned a series of engagements which are in keeping with the proverbial hospitality of "the West". More than this, special sight-seeing tours have been arranged to meet the convenience of visitors from other States who will arrive in Perth before congress meets or who are able to stay for a few days after it has ended.

The time for congress is drawing near. Already accommodation at Perth is heavily taxed, but provision can still be made for those who even at this late hour will let the Secretary know that they wish to become members. This session of the Australasian Medical Congress is heading for success; it will be too late after the end of August for members to ask themselves why they had no part in it.

AN EMPIRE MEDICAL ADVISORY BUREAU.

From London came the news some little time ago that the Council of the British Medical Association had on October 29, 1947, approved of the organization of what is known as the Empire Medical Advisory Bureau. It has appointed a committee of management to organize and develop the Bureau and has allotted funds for the purpose. Dr. H. A. Sandiford, M.C., is the medical director. Although members of the Australian Branches of the British Medical Association visiting England for post-graduate study or other purposes have always been advised and helped in many ways by officers of the Association, the establishment of this special bureau will be welcomed. Visitors to England are naturally a little diffident about taking up the time of men who are fully occupied in their usual duties.

It is intended that the Empire Medical Advisory Bureau which is housed at British Medical Association headquarters, Tavistock Square, shall provide many services for its overseas visitors. In a recent letter Dr. Sandiford states that one of the main objects of the Bureau is to

welcome overseas visitors from the Dominions and to make them feel at home in England. When possible they will be met at their ports of arrival by a medical *confrère*; when this cannot be done the visitor is invited to communicate with the Bureau as soon as possible after his arrival so that the Director will be able to offer the personal service which it is the Bureau's aim to give. Most medical travellers to the Old Country, especially those who have not been qualified for very long, make the journey in order that they may extend their knowledge of one or more of the branches of medicine. The Bureau will be able to supply detailed information on the facilities for post-graduate study and when required will provide the visitor with introductions that will help him to attain his objective. Those who wish to study the latest medical and surgical techniques can be brought into contact with those who practise them, and it is hoped that in due course information on current research may be available. The problem of finding somewhere to live is acute and the Bureau will make every endeavour to put visitors on the track of suitable lodgings and hotels. In this regard attention should again be drawn to the excellent provision that is made for overseas students at London House (see THE MEDICAL JOURNAL OF AUSTRALIA, August 30, 1947). Private hospitality has been offered by some medical practitioners in their homes and the Bureau intends to develop this aspect of the scheme later on.

There are other spheres of activity apart from medical study in which the Bureau may be of use to visitors. Sports, travel and amusements of various kinds come to mind, and information may be sought on rationing of food and clothing, on petrol allowances, customs duties and so on. The Bureau will be of most service to those who notify the Director of their intended visit well in advance of their arrival in England. Full information of their needs should be given; and, though it is not essential, a letter of introduction from the Branch Secretary overseas will be appreciated.

By its establishment of the Empire Medical Advisory Bureau the Parent Body has given evidence once more of its constant concern for the welfare of its overseas Branches and their members. The best way to show appreciation is to make full use of the facilities provided.

Current Comment.

STREPTOMYCIN AND TUBERCULOUS MENINGITIS.

THE preliminary use of streptomycin on a large scale made it fairly clear that its value in the treatment of tuberculosis was likely to be limited to certain particular types of the infection. Its continued administration to those suffering from tuberculous meningitis has been persistently recommended by those most experienced, despite the inconclusive nature of many of the results. The results have varied from dramatic remissions to disillusioning failures, but in most cases the period of treatment has been too short to allow of final conclusions. In the statement issued last year by the Council on Pharmacy and Chemistry of the American Medical Association,¹ there appear in the same paragraph the statements that the immediate dramatic response of patients with meningitis makes treatment with streptomycin mandatory,

and that it is doubted that the eventual mortality rate of meningitis will be appreciably reduced. Of 91 patients with meningeal involvement considered in that report, 33 were still alive and had considerably exceeded, according to past experience, their life expectancy. Only 10 of the 33, however, had completed treatment and were free from bacteriological and clinical evidence of active central nervous system infection; only one had an entirely normal spinal fluid. The compilers of the report considered it quite possible that those ten patients would suffer a relapse and that their ultimate survival might be considered dubious. However, even a period of remission was felt to justify the treatment with streptomycin of this otherwise almost uniformly fatal disease.

Two important reports have now come to hand from Britain. In the first the Streptomycin in Tuberculosis Trials Committee of the Medical Research Council² have analysed the results on December 15, 1947 (that is, after a minimum of one hundred and twenty days' observation of survivors), among 105 subjects of tuberculous meningitis admitted to Medical Research Council centres before August 18, 1947, and treated with streptomycin. An addendum gives the principal results up to March 15, 1948 (that is, after a minimum of seven months' observation of all survivors), and indicates that of the 105 patients, 27 were still making good progress, 71 had died; of a group of 48 (children aged three years and over and adults) given combined treatment by both intramuscular and intrathecal routes 19 were still making good progress, 26 had died. The December figures indicate the poor response among children aged less than three years (only four of a total of 33 being still in good condition) and the close correspondence between a favourable response and the early institution of treatment. In relation to the latter point, the importance of early diagnosis is stressed: "any patient with diagnosed tuberculosis and a lymphocytic reaction in the C.S.F. should be treated as a case of tuberculous meningitis unless an alternative diagnosis is clearly demonstrated"; subjects of suspected meningitis should be investigated for collateral evidence of tuberculosis—a history of contact or a response to the Mantoux test (the use of a one in one thousand dilution of old tuberculin as a first test being considered amply justified). The best method of treatment is still far from being settled, but "that intrathecal treatment is practically indispensable is one of the few definite findings". Intramuscular therapy is indispensable and, according to this report, should probably be given continuously for three months at least; whether its administration should be continuous or intermittent after that is still debatable. The rightness of commencing treatment of those with advanced conditions is problematical, though the limitation in supplies of streptomycin and beds rather rules them out at present; among those undergoing treatment it seems justifiable to cease streptomycin administration if, after two months of treatment, there is progressive severe deterioration "to avoid the miserable deferment of an inevitably fatal outcome".

Of particular interest in this Medical Research Council series is a group of eighteen patients treated at Oxford on whom a separate report was made by Honor V. Smith, R. L. Vulliamy and Sir Hugh Cairns.³ Of the eighteen patients, seven died, seven were treated with streptomycin for 68 to 255 days and were, when the report was written, "virtually free from symptoms" (one to six months after treatment had ended), and four were still under treatment, which had begun over two months previously. In most cases streptomycin was given by the intramuscular and intrathecal routes for at least the first six weeks of treatment and thereafter by the intramuscular route alone for the next four to six months. Considerable use was made of various surgical procedures, though it is not quite clear how much these contributed to the good results. In all cases except two, frontal burr-holes were made to provide access to the anterior horns of the lateral ventricles, and the report describes in some detail the value of the procedure in both diagnosis and treatment. Every reasonable possibility, surgical and medical, was exploited to

¹ The Journal of the American Medical Association, November 8, 1947.

² The Lancet, April 17, 1948.

³ The Lancet, April 24, 1948.

make the treatment effective, and treatment was abandoned only in extreme circumstances. The dictum of Smith and his colleagues is that "nothing but the coarsest neurological defects, maintained over months in spite of adequate treatment, should be regarded as an indication for abandoning treatment".

A further development of this treatment is the combination with the streptomycin of a sulphone. Edith M. Lincoln, Thomas W. Kirmse and Estelle de Vito report¹ that a sulphone, "Promizole", was used alone in the treatment of five subjects of tuberculous meningitis; all patients died and post-mortem examination of the brain in two cases showed no demonstrable retardation of the disease. However, because encouraging results had been obtained with "Promizole" in treating military tuberculosis, it was given in combination with streptomycin to seven patients with tuberculous meningitis, the idea being to exploit the rapid action of streptomycin in the early stages and, for the later stages, to give "Promizole" for a prolonged period, as it can be given orally and for a period of years with no serious toxic effects. Of the seven patients, one died after two months of treatment; six were living three to eight months after treatment was instituted, all normal mentally and with no neurological sequelae of great significance. No serious toxic effects of "Promizole" were noted and those of streptomycin were not great. Lincoln and her colleagues make no claim of cure as the period of observation was too short, but their report opens up important possibilities. All the reports seem to support the conclusion of Smith, Vollum and Cairns that "the practical value of streptomycin in the treatment of tuberculous meningitis has been established". The stumbling block is the occurrence of relapses even after long periods of apparently favourable response, and it may well be that the solution lies in the use of some additional agent, such as a sulphone, which can be given almost indefinitely without the disadvantages attending the prolonged administration of streptomycin.

THE NATURE OF GOUT.

GOUT has been the subject of a deal of scientific curiosity and has yielded up some knowledge of its biochemical mechanisms, but is still somewhat of a mystery. Diagnostically it still tends to be overlooked, as has been pointed out in these pages before; but though we have refined tests to help us and refined drugs to help the patient, we cannot tell exactly what it is, nor do we know what determines its periodic explosions. The latest explorer in these little-charted seas is an anatomist. F. Wood Jones, in admitting his own unfortunate inclusion in the list of the famous who have suffered from this ailment, has made some very astute observations on the vascular phenomena.² Indeed there will probably be numbers of clinicians who read his account who will wonder why in gazing at the afflicted limbs of patients they have not seen more. He remarks that an attack has always followed a period not of high living, as the old untrustworthy tradition suggests, but of depression due to worry, overwork or other tribulation. His experience has not given any support to any of the classifications of foods as gouty or non-gouty, but he agrees with the later opinion of John Hunter that "living above par" is a predisposing cause.

Wood Jones remarked early the curious vascular phenomena in the lower limb. During a spasm of pain some time after the first attack of podagra the superficial veins were quite empty, later becoming engorged, a sequence followed during successive attacks of pain from the knee downwards. Simultaneously an area around the ankle joint showed alternating congestion of the superficial venous mesh and obliteration of all external signs of the same vessels. These observations induced some reflections on arterio-venous anastomoses in the neighbourhood of joints. These are so abundant that the author com-

ments that the surgeon is apt to assume that they are a special provision permitting the safe ligation of the main artery of the limb. Venous anastomoses are just as abundant as those of the arteries. Thirty years ago Wood Jones drew attention to the provision of each segment of a limb with a self-contained unit of deep and superficial veins, and he now points out that it is logical to suppose that there is also an arterio-venous arrangement for each segment, so as to provide it with a complete circulatory unit equal to all ordinary demands, and much more plastic and adjustable than the capillary bed. In the digits such requirements are met by the glomus bodies. This concept would make it clear how each limb segment could have its own arterio-venous shunt under the general control of the autonomic nervous system. The great activity of the circulatory arrangements of the digits suggests that these connexions are more important nearer the extremities. Such an hypothesis would explain the striking vascular alternations described above. Also the relation of these visible changes to the symptoms characteristic of gouty manifestations in the extremities suggests that there may be some autonomic nervous disturbance concerned. Wood Jones thinks it possible that gout may then be a member of a large group of vasomotor disorders with such different clinical characters as causalgia, immersion foot, Raynaud's disease, and erythromelalgia. Certainly there does appear to be a common basis for the vascular phenomena of these maladies, but whether this is a question of mechanism only or whether it goes deeper to the root of the diseases themselves would be difficult to say. The author's own observations point to the idea that the sensory symptoms are of vascular distribution rather than neural, but he is careful only to suggest that gout may be one of the diseases "affecting the autonomic system". He supports his observations by quoting from some of the early writers, whose findings were accurate, even though their explanations may have been hampered by an outlook limited by the physiology of that day. Perhaps some critic may object that the implicit connexion of the hypothalamic centres with these segmental vascular phenomena may help to explain the descent of gout on the worried and the overworked, but that such an idea tends to overwork the hypothalamus. To this one reply might be that the hypothalamus is overworked under the curious conditions surrounding the life of the human animal. However, the concept that nervous and chemical stimuli are at root the same helps us to relate structure and function more closely. Wood Jones himself has done much to unify anatomical teaching along these lines, and perhaps he has given the physician something to think about in connexion with a disease whose further study might help medicine in many ways.

THE THOMAS BAKER MEMORIAL SCHOLARSHIP.

It was announced at the annual meeting of the Australian and New Zealand Association of Radiologists held in May, 1948, that the trustees of the Thomas Baker, Alice Baker and Eleanor Shaw Benefactions had provided £1000 for a radiological scholarship to be known as the Thomas Baker Memorial Scholarship, the intention being to award it every two years. The aim of the scholarship is to allow an Australian or New Zealand radiologist who is on the threshold of consultant practice to widen his knowledge by study in England. In view of the notable advances that have occurred in the field of radiology and of the increasing importance of this branch of medical science, the institution of this scholarship is very timely. The hope is expressed by the Association of Radiologists that it may be possible to interest other people in making benefactions for similar purposes and in particular to enable holders of the Thomas Baker Memorial Scholarship to spend some time in the United States on the way back to Australia. The scholarship is much to be commended and, particularly if the scholars can be allowed the additional advantage of observing North American work, should provide an effective means of keeping Australia in constant touch with overseas advances in this significant field of medical research.

¹ The Journal of the American Medical Association, February 28, 1948.

² The Lancet, January 31, 1948.

Abstracts from Medical Literature.

THERAPEUTICS.

Brucellosis.

C. W. EISELE AND N. B. McCULLOUGH (*The Journal of the American Medical Association*, December 20, 1947) report a case of brucellosis treated with streptomycin and sulphadiazine. The patient, a man, aged fifty-two years, suffered a prostrating illness with high fever, during the course of which on two occasions brucella agglutination tests gave positive results in dilutions of 1 in 640. The clinical picture was that of septicaemia. Penicillin was given without benefit. Cultures of *Brucella abortus* were obtained from the blood on 32 occasions in sixty-eight days. Four courses of streptomycin were given in daily doses from four to eight grammes to a total dosage of 189 grammes, one gramme being equal to 1,000,000 units. An exploratory operation was performed on the abdomen without result. Then a twenty-eight day course of sulphadiazine was given in doses from four to twelve grammes per day. During the last ten days of sulphadiazine treatment streptomycin was also given in daily doses of six grammes. This resulted in a rapid cure. The authors point out that the course of brucellosis is so variable that no significant conclusions can be drawn from one case, but they suggest that the response to combined treatment was notable. An addendum to the foregoing report records favourable results of combined treatment with streptomycin and sulphadiazine in twelve cases of brucellosis.

Arsenical Poisoning.

S. FRIEDENBERG (*The Journal of the American Medical Association*, December 20, 1947) records a case of trypanamide optic neuritis treated by 2,3 dimercaptopropanol (BAL). British anti-Lewisite (BAL) is now recognized as a specific drug in the treatment of arsenical poisoning, whether associated with exfoliative dermatitis, blood dyscrasias or hemorrhagic encephalitis. Adjuvant therapy, such as penicillin for intercurrent infection associated with arsenical agranulocytosis, is necessary. The case recorded was that of a man, aged forty-nine years, suffering from *tabes dorsalis*, who suddenly lost his sight in the lower fields of both eyes after doses of 0.7 and 1.0 gramme of trypanamide. He was treated with BAL, 300 milligrammes being given intramuscularly twice a day for two days, and 300 milligrammes per day for the next eight days. He recovered normal vision. The visual field defects were those of toxic amblyopia, and recovery in the visual defect was complete nine days after the treatment ceased.

Atherosclerosis.

S. L. WILKINS (*The Journal of the American Medical Association*, December 27, 1947) has analysed 519 post-mortem examinations on chronic alcoholics, in order to determine the relationship between chronic alcoholism and atherosclerosis. It has been suggested that over-eating and fatty diets

induce atherosclerosis, and that chronic alcoholism diminishes the tendency to atherosclerosis. Among the 519 cases analysed, most of the subjects had consumed the equivalent of one pint or more of whisky per day for many years. In a comparison of alcoholics with non-alcoholics it was found that atherosclerosis was considerably less common and less severe in alcoholics, but the age at death of the alcoholics was lower than that of the control group. Hypertension and malignant growths were much less common among alcoholics, but tuberculosis was more often found. Cirrhosis of the liver was recorded in 28% of alcoholics, and the liver contained much fat. The authors conclude that, in general, chronic alcoholism does not prevent the occurrence of atherosclerosis in view of the fact that alcoholics die at an earlier age than non-alcoholics.

Chilblains.

S. T. ANNING (*The Lancet*, November 29, 1947), after administering calciferol to 262 persons, was able to conclude that this drug is ineffective in preventing chilblains and unhelpful in their treatment.

Auricular Fibrillation.

R. L. McMILLAN AND C. K. WELFARE (*The Journal of the American Medical Association*, December 27, 1947) discuss the treatment of chronic auricular fibrillation with quinidine sulphate. There is no unanimous opinion as to whether auricular fibrillation *per se* is disabling. The authors argue that it is—that it induces heart failure, promotes embolism and causes discomfort. They state that embolism is not one of the dangers of quinidine therapy, and that embolism occurs more frequently among patients who are not treated with quinidine. However, they report that toxic symptoms occurred in 64% of their patients treated with quinidine—nausea, vomiting, headache, drowsiness and tinnitus. Severe toxic symptoms such as syncope, collapse, pulmonary embolism and delirium occurred in 10%. It is stated that the only real contraindications to quinidine therapy are bacterial endocarditis, complete heart block and angina relieved by fibrillation. Fifty patients were treated, suffering from auricular fibrillation of rheumatic, arteriosclerotic, thyrotoxic, hypertensive and mixed types. All were given full doses of digitalis in hospital before quinidine treatment. Then a test dose of 0.2 gramme of quinidine was given. If no toxic effects occurred in twelve hours, 0.2 gramme was given every four hours day and night, and increased by 0.2 gramme every twelve hours until normal sinus rhythm or toxic symptoms occurred, or until the dose of 0.8 gramme was reached. The drug has a cumulative effect. If the drug is omitted after normal rhythm occurs, there is often a prompt return of auricular fibrillation. The maintenance dose was variable, and was found by gradual reduction in the original dose to about 0.28 gramme every six hours. Normal sinus rhythm was restored in 44 patients, and in 14 it has persisted for four months to two years. Patients aged between forty and forty-nine years responded to the smallest doses of quinidine and maintained normal rhythm longest in the series, and the best results were obtained with patients suffering from

rheumatic heart disease. The least responsive were thyrotoxic patients, none of whom responded until the thyrotoxic state had been treated. Congestive failure was not a contraindication to quinidine therapy. The patients show subjective improvement, but not necessarily objective improvement.

III-Effects of Folic Acid.

P. F. WAGLEY (*The New England Journal of Medicine*, January 1, 1948) stopped treatment with liver extract which was being administered to ten patients suffering from pernicious anaemia and substituted treatment with folic acid. The patients had been going on well with their liver treatment, but during the treatment with folic acid eight out of the ten patients suffered ill-effects referable to the nervous system, such as paraesthesia, loss of vibration sense and difficulty in passing urine. In some patients these ill-effects had never been present before and in some their onset was abrupt and severe. Three patients suffered either progression or return of soreness and burning of the tongue. The author concludes that the use of folic acid for the treatment of pernicious anaemia in the present state of knowledge entails a definite risk of injury to the nervous system.

Heparin in Empyema.

A. E. MACMILLAN (*Diseases of the Chest*, November-December, 1947) injected heparin into the pleural cavity of a patient suffering from a mixed tuberculous empyema. This was done in order to prevent the formation of clots which might block the needle during aspiration of the pus, and this purpose was successfully achieved; it was done also with a view to preventing adhesions which might anchor the lung or retard or prevent its expansion.

NEUROLOGY AND PSYCHIATRY.

"Epidon": A New Anti-Convulsant.

In order to overcome the hypnotic effect of "Luminal" and the toxicity of diphenyl hydantoinate, Mogens Ellermann, of Copenhagen (*The Journal of Nervous and Mental Disease*, September, 1947) has introduced a variation of the latter drug, "Epidon", in which there has been substitution of an NH group by oxygen. "Epidon" is 5.5 diphenyl, 2.4 dioxothiazolidinedione. Animal experiments and a small series of clinical tests indicate that the toxic reactions are about one-fifth as frequent as those of "Dilantin". "Epidon" is less hypnotic than "Luminal". The author admits that other oxazolidinediones may have even better properties. Experimentation is proceeding on these lines.

Insulin in Hypoglycaemia.

A. M. SPENCER (*The Journal of Mental Science*, July, 1947) reviews the literature and from laboratory and clinical material concludes that if the onset of insulin coma is determined by the absence of corneal reflexes and the presence of Babinski's reflex, then the intravenous administration of insulin has no advantage over the intramuscular or subcutaneous injection of insulin, since a larger dose is

required to produce this depth of coma. In addition there is a greater possibility of anaphylactoid shock in patients sensitive to insulin. By the intravenous use of insulin the time occupied by treatment is reduced some thirty minutes each day, and milder hypoglycemic states can be induced with less insulin and with a greater possibility of spontaneous awakening of the patient. The author believes that the intravenous injection of insulin offers insufficient advantage over the intramuscular injection of insulin in the Sakels treatment to justify its use.

Study of Echo Reactions.

E. STENGEL (*The Journal of Mental Science*, July, 1947) states that the automatic repetition of words heard (echolalia) and actions seen (echopraxia) has long been known to occur in certain psychotic states and in low-grade mental deficiency. It is also present in (i) the early period of speech development in childhood, (ii) states of fatigue and lack of attention in the normal, (iii) states of clouded consciousness of various origins, (iv) chronic epilepsy and (v) catatonic states, and in some forms of aphasia and advanced dementia. These conditions have the following features in common: an impulse to speak with an incomplete development and impairment of expressive speech, and of perceptive speech. The interpretation of echo reactions as automatic obedience is only partly correct. Hughlings Jackson's contention is that there is no antithesis between automatic and voluntary, but only degrees from the "most automatic" to the "least automatic", which is voluntary. Echo reactions require a degree of rapport and a wish for social intercourse and identification; the latter mechanism underlies the phenomena of suggestibility. The contradictory behaviour and ambivalence in schizophrenia are further illustrated by the occurrence of echo reactions in the catatonic and otherwise withdrawn personality. There is no unanimity about the localization of lesions responsible for the emergence of automatic echo reactions in abnormal subjects.

Cerebral Concussion.

M. SPIEGEL-ADOLF, H. T. WYCIS AND E. A. SPIEGEL (*The Journal of Nervous and Mental Disease*, September, 1947) have carried out ultra-spectrophotometric cerebro-spinal fluid examinations of 45 patients suffering from sustained concussion. Differences are noted up to two months after the accident. The selective absorption suggests the appearance of nucleic acid compounds related to chromatolytic changes in nerve cells.

Psychosis Associated with "Atebrin".

MARVIN F. GREIBER (*The American Journal of Psychiatry*, November, 1947) reports the occurrence of 43 cases of psychoses in which "Atebrin" was thought to be of aetiological importance. The observations were made in the India-Burma theatre between June, 1944, and November, 1945. On February 15, 1945, suppressive "Atebrin" therapy was introduced to 37,500 troops who had never previously taken the drug except for treatment, and the incidence of psychoses increased fourfold. No

increase was noted in the number of psychoneurotics during this time. The psychotic patients were classified into (i) primary group (previously stable) and (ii) "trigger" group (history suggested some predisposition). In the primary group taking suppressive treatment, symptoms developed between the forty-fourth and the eighty-fourth days; in the "trigger" group the period varied between seventeen days to five and a half months. Five cases of benign tertian malaria and four of malignant tertian malaria in this series occurred prior to suppressive treatment when large doses were being used for treatment (2-8 grammes of "Atebrin"). This reaction appeared from the sixth to the thirteenth day of treatment and lasted on the average three weeks. Mania-like reactions were approximately twice as common as the schizophrenic type of reaction. All had an acute onset and stormy course and cleared within thirty-five days. Twenty psychotic patients were retested with "Atebrin"; all five of the primary group and eleven of the fifteen in the "trigger" group reproduced a further psychotic episode. Patch tests and blood "Atebrin" studies gave no indication of susceptible persons. Treatment was non-specific; 87% were returned to full duty.

Psychoneuroses and the Changing Times.

RICHARD H. HUTCHINGS (*The Journal of Nervous and Mental Disease*, September, 1947) discusses the increasing number of psychoneurotics in the community and quotes the large percentage found in the American army. He finds that psychoneurosis betokens an emotion leading to weakness in situations where courage and determination are needed. He correlates the increasing numbers with the changing way of life. Not least is the emancipation of woman and woman's smothering of her biological urges. Instead of suckling the child in an atmosphere of love, thereby patterning the emotional responses to safety, she brings it up on a bottle. "The child not knowing love acquires little or no sympathy. He was not picked up from the crib when frightened or lonesome or when he cried; he learned to get on by himself. That pattern 'to get on by himself' leads when the child has grown older to truancy, banditry and disregard of law in general." The author gives some blame to the physician for condoning unmotherly practices and hopes that there will be a reversal of the oracle which said: "Don't take up the baby when it cries, let it learn to get along by itself."

To Unscrew the Inscrutable, or "Cause" and "Meaning" in Psychopathology.

JOHN C. WHITEHORN (*The American Journal of Psychiatry*, November, 1947) states that one of the main functions of modern psychiatry is to conduct an individual study of each patient and to point out the main recurrent theme or issue of conflict; to assess the individual's potentialities for dealing with this issue; and finally to evoke a well-founded and self-assured mode of resolving it. As a rule the clinical study rarely reveals a single crucial traumatic event as the specific cause of a neurosis. Important in strategy is an early mutual understanding of the meaning of some of the patient's

neurotic behaviour in terms of emotional needs. Attention should be directed away from the tendency towards recapturing with scientific zeal some specific forgotten memory and thereby finding and removing "the cause" of emotional ill health. If opportunities are taken to interpret the potential meaningfulness of the life situation and the meaningfulness of the patient's reaction, then the therapist will be able to give assistance long before sufficient evidence is obtained from the patient to form a valid aetiological hypothesis.

Transvestism.

BEN KARPMAN (*The Journal of Nervous and Mental Disease*, September, 1947) describes a case of transvestism in a male, aged thirty-seven years. The dressing up in women's clothes commenced after marriage. Analysis showed that he had been conditioned in childhood. Until the age of five years he had had his hair dressed like a girl and when small wore aprons. If he misbehaved he was dressed like a girl. A detailed analysis of the dream life reveals that "he loves himself as an infant in the person of his own mother with whom he identifies himself". There were dreams of being a woman, clothed in silk and admiring her own breasts. The author found that no less than 80% of his dreams were concerned with transvestism and homosexuality; he concludes that transvestism is a factor which assists the patient to maintain a fiction of heterosexuality, though the main trends are homosexual.

Penicillin in Suppurative Lesions of the Brain and Meninges.

HUGH CAIRNS (*Brain*, September, 1947) discusses the use of penicillin in suppurative lesions of the brain and meninges. He emphasizes that penicillin must have access to the organisms and should be given intrathecally in doses of 12,000 units once or twice a day. The drug can be administered by the lumbar, cisternal or ventricular route. Penicillin should also be given systemically to overcome the primary source of infection as well as to lessen certain types of intracranial infection. He emphasizes that the penicillin level in the cerebro-spinal fluid should be estimated each time cerebro-spinal fluid is withdrawn. Sulphonamides by mouth are given as well. He records the results of treatment in a series of cases including pneumococcal, streptococcal and staphylococcal meningitis.

Nutritional Disorders in Japanese Prisoners.

W. H. EVERTS (*The Journal of Nervous and Mental Disease*, September, 1947) describes conditions of the Japanese after the capture of Manila. On a normal diet of three canteen cups of rice plus meat or fish per day, together with yams or other vegetables, the health was good. It deteriorated when the Americans drove them into the mountains. The chief disorder was beriberi, of which the Japanese physicians recognized three types, the dry, the wet and the mixed; of these the dry appeared first. There is a picture of severe malnutrition with evidence of hypoproteinaemia and varying grades of vitamin B complex and vitamin C deficiency.

British Medical Association News.

SCIENTIFIC.

A MEETING of the New South Wales Branch of the British Medical Association was held on April 29, 1948, at the Robert H. Todd Assembly Hall, British Medical Association House, 135, Macquarie Street, Sydney. COLONEL A. M. MCINTOSH, the President, in the chair.

The Education of Deaf Children.

MR. W. E. JOHNSON, Superintendent of the Senior School for the Deaf, Darlington, read a paper entitled "The Education of Deaf Children" (see page 13). The discussion on this paper will be published in a subsequent issue of the journal.

A MEETING of the New South Wales Branch of the British Medical Association was held on December 4, 1947, at the Saint George Hospital, Kogarah. The meeting took the form of a number of clinical demonstrations by the members of the honorary staff of the hospital.

Bilateral Cystic Disease of the Lungs: Spontaneous Pneumothorax.

DR. C. G. BAYLISS showed a male patient, aged forty-one years, who on October 11, 1945, had had a sudden attack of breathlessness after a long trip by air. When examined in hospital fifteen days later he presented as a healthy man, somewhat breathless while lying in bed. Since the onset of the illness he had had a cough. He did not complain of pain in the chest. Examination of his chest revealed diminished expansion and absence of breath sounds on the left side; on the right side the breath sounds were harsh and vesicular in type. A skiagram of the chest taken on October 29 showed the presence of cystic disease affecting the upper two-thirds of the right lung; the upper three-quarters of the left lung was seen to be flattened against the mediastinum. At the extreme base of the left lung a small area of normal lung was present. The diagnosis was made of spontaneous pneumothorax occurring in a patient suffering from bilateral cystic disease of the lungs.

Treatment at first consisted of removing air from the pleural cavity with the pneumothorax apparatus; this was done on numerous occasions. Continuous negative suction through an intercostal tube was attempted, but could not be tolerated by the patient.

A skiagram taken on November 19 showed that some expansion of the base of the lung had occurred. A few days later the patient's temperature rose and he did not seem so well; a skiagram on November 28 revealed a considerable amount of fluid present in the pleural cavity. On the following day sixteen ounces of blood-stained, purulent fluid were withdrawn; this indicated the development of empyema. On December 13 thoracotomy was performed. Steady improvement followed, and a skiagram taken on January 7, 1946, showed that the lower half of the lung was expanded. By March 28 the lung was about two-thirds expanded. Progress was slow, but by July 24 only a small pleural space remained. The patient was then well, and shortly afterwards he was discharged from hospital. A skiagram taken on July 17, 1947, revealed complete expansion of the lung. At the time of the meeting the patient had been working normally at his trade of butcher for several months, and said that he felt as well as he had been prior to the attack in October, 1945.

Pulmonary Tuberculosis Treated by Bilateral Artificial Pneumothorax.

DR. Bayliss then showed a female patient, who when first examined on May 1, 1941, was sixteen years old. She had been suffering from general malaise and cough for several months. A skiagram of the chest taken on April 24, 1941, revealed moderately extensive infiltration affecting the left axillary region. The sputum contained tubercle bacilli. On August 18, 1941, artificial pneumothorax treatment was commenced. Satisfactory relaxation of the lung was obtained, no adhesions being present. The pneumothorax was continued and the condition remained stable until January, 1943; a skiagram taken on January 28 indicated a moderate amount of infiltration in the upper zone of the right lung. No active measures were instituted at this stage for the disease in the right lung, but strict rest was ordered; however, a skiagram taken on September 16, 1943, showed that the

disease in the right lung had extended; satisfactory relaxation of the left lung was still present. On September 28 artificial pneumothorax treatment was commenced on the right side. Apical adhesions were present, preventing effective relaxation of the lung. The adhesions were freed endoscopically on October 28, satisfactory relaxation of the lung being obtained.

DR. Bayliss said that artificial pneumothorax treatment had been continued on both sides up to the time of the meeting, although that on the left side was to be abandoned. The general condition of the patient at the time of the meeting was excellent; radiologically the disease in both lungs appeared to be under control, evidence of calcification being present on both sides. Cultural examination of the fasting gastric contents had failed to produce a growth of tubercle bacilli since September, 1946.

Septicæmia Treated with Streptomycin.

DR. B. DENNING showed a male patient, who on April 3, 1947, had been operating a compressed air road drill when it exploded; a piece of piping about eight inches long was driven into his back in the region of his left sacro-iliac joint. On his admission to hospital he made no complaint of abdominal symptoms, but on examination he was found to present some muscular resistance in the lower part of the abdomen and some tenderness on deep palpation. He was taken to the operating theatre and the wound in his back was explored. The wound was contaminated with road dirt, much laceration of skin and contusion of muscle were present, and a fair amount of muscle of doubtful viability had to be removed. At the bottom of the wound a perforation of the sacrum could be felt, about the size of the index finger. The wound was cleansed and packed with sulphamylamide powder and "Vaseline" gauze, and it was decided to explore the abdomen.

In spite of the comparatively slight physical signs, the lower part of his abdomen was found to be full of blood, and when this had been cleared away four perforations were found in the lower iliac part of the colon, the piece of tubing apparently having passed completely through the bowel in two places. This meant that an area of about two inches of colon was too badly lacerated for repair, and the two ends of the undamaged colon were brought up to the surface through a separate incision as a colostomy and the abdomen was closed.

The patient was given penicillin and sulphadiazine continuously from the onset, and for the first three days the course was comparatively straightforward; the colostomy began to function on the second day. From the fourth day onwards his temperature began to be rather of the "swinging" type, and on the tenth day he began to have rigors associated with sweating and delirium, indicating the onset of pyæmia. The dosage of penicillin was increased, and there was a temporary improvement in his general condition. By the fourteenth day his condition had changed from that of pyæmia with occasional dislodgement of septic emboli accompanied by rigors to one of septicæmia with continued high temperature and delirium. He was semi-comatose. His skin was dirty grey in colour and he seemed almost moribund.

At this stage some streptomycin was obtained for him. It was given intramuscularly in doses of 200 milligrammes in one millilitre of saline solution every three hours for ten days. The effects of this treatment were just as dramatic as had been the effects of penicillin on Gram-positive organisms. In twenty-four hours the patient's temperature and pulse rate returned to normal, and for four days he remained apparently well. On the sixth day he had one further rigor with delirium, but this was not repeated, and he remained well thereafter. Blood taken for cultural investigation at the height of the septicæmia unfortunately became contaminated with *Bacillus subtilis*; but sufficient Gram-negative organisms were present to enable the diagnosis of *Bacillus coli communis* septicæmia to be established. Subsequent cultural examination of material from the wound yielded a growth of *Bacillus proteus* only, but it was not considered that this organism was the cause of the septicæmia.

Cure of Perineal Hypospadias with Bifid Scrotum and Undescended Testes.

DR. A. C. THOMAS showed a male patient, aged eight years, who had been born in the hospital. At the time of his birth it was difficult without close investigation to determine whether the infant was a male or a female. However, examination at that time revealed a bifid scrotum, which did not contain testes, and a penis which was bound down by the shaft and glans between the two folds of the scrotum,

the external meatus being placed in the perineum. It was decided to wait until the child was older to attempt to correct the deformity. The first operation had been performed when he was aged four years; it consisted of the freeing of the glands and the body of the penis from the perineum and scrotum. This was successful. Two years later it was decided to attempt to form a urethra to open at the glans by the Thiersch flap method. A new urethra was eventually formed and the proximal end of this tube and the perineal meatus were subsequently joined after a suprapubic cystostomy operation had been performed. The testes then were still not in the scrotum, which was no longer bifid after the foregoing procedures. The child was given a course of injections of "Antuitrin-S" (Parke, Davis and Company), and at the time of the meeting both testes were in the scrotum. The patient had a well-developed penis with a normal scrotum, and passed urine normally through the new urethra.

Aberrant Thyreoid.

Dr. Thomas then showed a female patient, aged nineteen years, who had first presented herself in March, 1947, complaining of "a cyst in the throat" present for five years, of tiredness and of loss of weight. No other relevant details were obtained from her history. She was a rather pale girl, her pallor suggesting secondary anaemia, and a mass of discrete glands was palpable in the posterior triangle of the neck and deep to the sternal end of the sterno-mastoid muscle on the right side. No glands were palpable in the left side of the neck, in the axillae or in the groins, and the spleen was not enlarged. The thyreoid was normal on palpation. A provisional diagnosis of Hodgkin's disease was made and the patient was admitted to hospital for biopsy of the glands. An X-ray examination of the chest and a blood count revealed no abnormality. Several of the glands were removed for biopsy. Although the pathologist reported that the cells in the lymphoid glands were relatively benign, he gave it as his opinion that the glands represented metastases of a papillary adenocarcinoma of the thyreoid, in spite of the apparently normal appearance of the thyreoid. In view of this opinion it was decided to explore the thyreoid gland. At the upper pole of the right lobe a small whitish nodule was present. Right hemithyreoidectomy was then performed. Histological examination of this lobe revealed only hyperplasia of the epithelium and hyperactivity of the gland, more pronounced in the nodular area. There was no evidence of malignancy. Reexamination of the original tissue was then made, and it was concluded that it represented aberrant thyreoid tissue possessing the structure of papillary adenoma with hyperactivity.

Interlobar Empyema.

Dr. Thomas then showed a male patient, aged twelve years, who had been admitted to hospital on March 12, 1947, suffering from pneumonia of the lower lobe of the right lung. He did not respond satisfactorily to sulphadiazine and penicillin, and the presence of empyema was suspected but not confirmed until March 25, in spite of several exploratory punctures during the preceding week. The child was then treated by daily aspiration and injection of penicillin; but as he did not respond so well as he should, a surgical opinion was requested, and an X-ray examination of the chest revealed interlobar empyema. Several unsuccessful attempts were made to locate the collection, and it was then decided to operate. The seventh intercostal space was opened by a long incision and the ribs were retracted by a rib-spreader. A small amount of pus was found in the pleural cavity, but a large collection was found between the middle and lower lobes of the lung. This was completely evacuated by a sucker. The pleural cavity was drained through a stab wound at the level of the attachment of the diaphragm and the incision in the seventh intercostal space was closed. Except for rather severe surgical emphysema after the operation the patient made an uninterrupted recovery and was discharged from hospital within five weeks of the operation.

(To be continued.)

VICTORIAN BRANCH NEWS.

THE Secretary of the Extension Committee of the University of Melbourne has requested that the following programme of inaugural lectures (second term, 1948) be brought to the notice of the members of the Victorian Branch of the British Medical Association. The lectures will be delivered in the Public Lecture Theatre, Arts Building,

University of Melbourne, at 8.15 p.m. on the following Mondays: June 21: "The Planned State and the Rule of Law", W. G. Friedmann, LL.D. (London), Dr. iur. (Berlin), Professor of Public Law; June 28: "The Development of Social Psychology", O. A. Oeser, M.Sc. (South Africa), Dr. Phil. (Marburg), Ph.D. (Cantab.), F.B.Ps.S., Professor of Psychology; July 5: "The Development of the Cell Theory", O. W. Tiegs, D.Sc. (Adelaide), F.R.S., Professor of Zoology; July 12: "Six Millennia of Metallurgy", H. K. Worner, D.Sc., Professor of Metallurgy.

THE MIDDLEMORE PRIZE, 1949.

THE Middlemore Prize, which consists of a cheque for £50 and an illuminated certificate, was founded in 1880 by the late Richard Middlemore, F.R.C.S., of Birmingham, to be awarded for the best essay or work on any subject which the Council of the British Medical Association may from time to time select in any department of ophthalmic medicine or surgery.

The Council of the British Medical Association is prepared to consider an award of the prize in the year 1949 to the author of the best essay on "The Value of Orthoptics in the Treatment of Squint".

Essays submitted in competition must reach the Secretary, British Medical Association, British Medical Association House, Tavistock Square, London, W.C.1, on or before December 31, 1948. Each essay must be signed with a motto and accompanied by a sealed envelope marked on the outside with the motto and containing the name and address of the author.

In the event of no essay being of sufficient merit, the prize will not be awarded in 1949.

THE KATHERINE BISHOP HARMAN PRIZE.

THE Council of the British Medical Association is prepared to consider an award of the Katherine Bishop Harman Prize in the year 1949. The value of the prize is £75.

The purpose of the prize, founded in 1926, is the encouragement of study and research directed to the diminution and avoidance of the risks to health and life that are apt to arise in pregnancy and child-bearing. It will be awarded for the best essay submitted in open competition, competitors being left free to select the work they wish to present, provided this falls within the scope of the prize.

Any medical practitioner registered in the British Empire is eligible to compete.

Should the Council of the Association decide that no essay submitted is of sufficient merit, the prize will not be awarded in 1949, but will be offered again in the year next following this decision, and in this event the money value of the prize on the occasion in question shall be such proportion of the accumulated income as the Council shall determine. The decision of the Council will be final.

Each essay must be typewritten or printed in the English language, must be distinguished by a motto, and must be accompanied by a sealed envelope marked with the same motto and enclosing the candidate's name and address.

Essays must be forwarded so as to reach the Secretary, British Medical Association House, Tavistock Square, London, W.C.1, not later than December 31, 1948. Inquiries relative to the prize should be addressed to the Secretary of the Association.

SIR CHARLES HASTINGS CLINICAL PRIZE.

THE Council of the British Medical Association is prepared to consider an award of the Sir Charles Hastings Clinical Prize in the year 1949. The prize consists of a certificate and a money award of fifty guineas.

The purpose of the prize is the promotion of systematic observations, research, and record in general practice. It will be awarded for the best essay submitted in open competition. The work submitted must include personal observations and experiences collected by the candidate in general practice. Candidates in their entries should confine their attention to their own observations in practice rather than to comments on previously published works on the subject, though reference to current literature should not be omitted when it bears directly on their results, their interpretations, and their conclusions. A high order of excellence will be required. No study or essay that has

previously been published in the medical Press or elsewhere will be considered eligible for the prize, and a contribution offered in one year cannot be accepted in any subsequent year unless it includes evidence of further work. The prize-winner in any year is not eligible for a second award of the prize.

Any member of the Association who is engaged in general practice is eligible to compete for the prize.

If any question arises in reference to the eligibility of a candidate or the admissibility of his essay, the decision of the Council shall be final.

Should the Council of the Association decide that no essay submitted is of sufficient merit, no award will be made in the year 1949.

Each essay must be typewritten or printed in the English language, must be distinguished by a motto, and must be accompanied by a sealed envelope marked with the same motto and enclosing the candidate's name and address.

The writer of the essay to whom the prize is awarded may, on the initiative of the Science Committee of the Association, be requested to prepare a paper on the subject for publication in the *British Medical Journal*, or for presentation to the appropriate section of the annual meeting of the Association.

Essays must be forwarded so as to reach the Secretary, British Medical Association House, Tavistock Square, London, W.C.1, not later than December 31, 1948. The prize will be awarded at the annual meeting of the Association to be held in 1949. Inquiries relative to the prize should be addressed to the Secretary of the Association.

THE STAWELL PRIZE.

The Stawell Prize, a memorial to the late Sir Richard Stawell, is open for competition. The amount of the prize is £30.

The conditions are as follows.

1. The prize shall be awarded to the writer of the essay adjudged to be the best on a subject selected annually.
2. The subject for 1948 is "Social Factors in Aetiology and Treatment, with Special Reference to Tuberculous Infections".
3. The dissertation should be based on personal observation and experience of the writer.
4. The competition is open to graduates of any Australian university.
5. The trustees reserve the right to withhold the award.
6. Essays must be delivered to the Medical Secretary, British Medical Association (Victorian Branch), by 4 p.m. on December 31, 1948.
7. Each essay must be typewritten or printed and must not exceed 75,000 words in length.
8. Each essay must be distinguished by a motto and must be accompanied by a sealed envelope marked by the same motto, containing the name and address of the author.
9. The trustees reserve the right to publish the prize essay.

Naval, Military and Air Force.

APPOINTMENTS.

CITIZEN NAVAL FORCES OF THE COMMONWEALTH.

Royal Australian Naval Volunteer Reserve.

Graeme Lindsay Grove is appointed Acting Surgeon Lieutenant-Commander, with seniority in rank of 30th September, 1945, dated 14th June, 1946 (seniority as Surgeon Lieutenant, 26th September, 1941).

To be Acting Surgeon, Lieutenant-Commander.—Douglas Lockhart Barnes Fearon, date of appointment, 31st July, 1947, seniority in rank, 30th September, 1946. (Seniority as Surgeon Lieutenant, 5th October, 1942.)

AUSTRALIAN ARMY MEDICAL CORPS.

NX204037 Captain B. B. Joyce is transferred to the Reserve of Officers (Australian Army Medical Corps) (2nd Military District), 29th April, 1948.

16th Camp Hospital.—NX208049 Captain J. L. Kelly is transferred to the Reserve of Officers (Australian Army Medical Corps) (2nd Military District), 22nd April, 1948.

ACTIVE CITIZEN MILITARY FORCES: SOUTHERN COMMAND.

Third Military District, Third Division.

4th Field Ambulance.—Lieutenant-Colonel W. D. Refshauge, O.B.E., is appointed from the Reserve of Officers and is appointed to command, 1st April, 1948.

6th Field Ambulance.—Lieutenant-Colonel C. H. Johnston is appointed from the Reserve of Officers and is appointed to command, 1st April, 1948.

Post-Graduate Work.

THE POST-GRADUATE COMMITTEE IN MEDICINE IN THE UNIVERSITY OF SYDNEY.

SEMINAR IN MEDICAL STATISTICS.

The seminar on "The Decline in Infant Mortality in New South Wales" to be held on Wednesday, July 14, 1948, at the School of Public Health and Tropical Medicine will begin at 6.15 p.m. instead of 5.45 p.m.

Obituary.

DAVID ARTHUR WELSH.

We are indebted to Professor Keith Inglis for the following appreciation of the late Professor David Arthur Welsh.

David Arthur Welsh, Emeritus Professor of Pathology at the University of Sydney, died on May 13, 1948, at the age of eighty-two years.

Professor Welsh was born in Forfarshire, Scotland; he was a graduate of the University of Edinburgh, and held the degrees of M.A., M.D., and the diploma F.R.C.P. (Edinburgh). He came to Sydney in 1902 as the first professor of pathology in this university, and occupied the chair of pathology from 1902 to 1936; he was Dean of the Faculty of Medicine between 1927 and 1929.

The following account of the early stages of his career is taken from an article in *The Student* (Journal of the Students' Representative Council of the University of Edinburgh), Volume XIII, January 5, 1899.

To the senior man Dr. Welsh needs no introduction, for of our many brilliant teachers there is no one more universally and more deservedly popular than he is; to the men of the junior years he is also well known as one of the good things the gods keep in store for them to resolve Chaos to Cosmos, and make Pathology the "excessively" interesting science it is.

Claimed by Forfarshire as an infant and adolescent—the man is Edinburgh's—for since his matriculation in the Faculty of Arts in 1884 Edinburgh and Edinburgh only has been his proud Alma Mater. Graduating with First Class Honours in Mathematics, and having gained the Drummond Mathematical Scholarship, he turned his attention to Science and Medicine with equal success. In 1890 he gained his B.Sc., and in 1893 graduated M.B. and C.M. with First Class Honours, and secured the Murchison Memorial Scholarship in Clinical Medicine and Pathology, competed for by the senior men of London and Edinburgh. Four years later he obtained his M.D. for his thesis on the Parathyroid Glands, being awarded a Gold Medal for this valuable addition to scientific knowledge.

Of his student career little need be said, but we must admit, briefly, that Dr. Welsh has been a most striking example of an exception to a theory we have based on some observation, and long clung to lovingly—that the chronic medallist is a mere "grind", with no soul above his marks and no chance in the future battle in the world with us.

Dr. Welsh has been a chronic medallist and of a most persistent type, and yet in spite of this he has risen in a remarkably short space of time to be Lecturer on Pathological Bacteriology and Senior Assistant to the Professor of Pathology, and also Pathologist to the Royal Infirmary; and among his previous appointments may be mentioned House Physician to the Dean, Clinical

Tutor on the University side, and Pathologist to the Royal Sick Children's Hospital.

His work on the thyroid and parathyroid Glands and also on the Pituitary Body is of exceptional merit, and has won for him a high place in the world of science.

In addition to his many scientific achievements, Dr. Welsh has found time to cultivate a distinctly high literary taste, and exercises this with no mean ability. He is also a most cultured conversationalist, and there is no man less inclined to talk shop, in ordinary circumstances.

But it is as a teacher that we really know Dr. Welsh and appreciate him. Possessing a thorough grasp of his science; clever, concise and analytical in style; painstaking to a degree and sound in judgment; and, finally, an enthusiast in his work, and possessing the great power of awakening this enthusiasm in his students.

When D. A. Welsh first joined Professor Greenfield's staff he was junior assistant under Robert Muir, the senior assistant, whose sister he later married.

In 1901 the Senate of the University of Sydney decided to raise the lectureship in pathology to a professorship, and applications were called for in the United Kingdom. There were sixteen applications and Dr. Welsh was selected.

Prior to his appointment to this chair, Dr. Welsh had worked for about a year in the Morningside Asylum under Dr. Clouston, and there was associated with Dr. Ford Robertson, a pioneer in the pathology underlying mental disease.

When Anderson Stuart and Wilson were joined in Sydney by Welsh, the Medical School had three outstanding men to shape its future. These three men, affectionately known to their students as "Andy", "Jummy" and "Taffy", all came from north of the Tweed; they were very different types, but all contributed much to the development of the University of Sydney Medical School in the early part of this century.

On arrival in Sydney in 1902 Professor Welsh found almost virgin soil so far as pathology was concerned, but he settled down to his task with enthusiasm, and in a short time his department established a reputation for excellent teaching and valuable research work.

Professor Welsh acted as honorary pathologist to the Royal Prince Alfred Hospital from 1902 to 1925, and thereafter as honorary consultant pathologist until 1936; he was responsible for all the pathological work of the hospital during the early years after his arrival in Sydney, and in later years his wide experience was always available to help in solving difficult problems.

When the radium clinic for the treatment of cancer was opened at the Royal Prince Alfred Hospital in 1928 under the direction of Mr. F. P. Sandes, Professor Welsh, with the help of his son, Dr. Arthur Welsh, and of Dr. Julia Leonie Amphlett, and in collaboration with successive radium registrars, made a study of the radio-sensitivity and radio-resistance of the cancer cell.

At the seventh annual reunion of the Royal Prince Alfred Hospital Medical Officers Association in 1936 the inaugural address was delivered by Professor Welsh, who chose as his subject "The Advancement of Pathology". This address, which was published in the Association's Year Book, embodied a record of those who worked with him in the Medical School and at the Royal Prince Alfred Hospital from 1902 to 1936. The demonstrators in the Department of Pathology at the Medical School were: J. B. Cleland, E. V. Barling, P. E. Walton Smith, Graham Butler, Froude Flashman, E. W. Ferguson, Elsie Dalyell, Marjory Little, B. T. Edye, Keith Inglis, Oliver Latham, Watson Munro, A. H. Tebbutt, Mona Ross, A. S. Walker and A. M. Welsh. The resident pathologists at the Royal Prince Alfred Hospital from 1902 to 1912 were: J. E. V. Barling, E. W. Moncrieff, S. A. Smith, G. A. Buchanan, P. E. Walton Smith, T. C. Parkinson, W. Vickers, H. D. Matthews, A. H. Tebbutt, Mary B. Burfitt, S. H. Weedon and H. R. Sear.

Much of the original work performed by Professor Welsh was conducted in collaboration with others, especially with his assistants and with his clinical colleagues. Those with whom he published papers jointly include R. Scot Skirving, J. E. V. Barling, A. MacCormick, H. G. Chapman, Sinclair Gillies, J. C. Storey, E. J. Dalyell, M. B. Burfitt, A. G. Butler, A. H. Tebbutt, H. Priestley, W. S. Brown, H. C. Taylor Young, Sir Charles Maccellar, S. H. Harris, R. Graham Brown, A. M. Welsh, J. Amphlett, R. H. Kenny and A. A. Palmer.

A professor in a medical school depends a great deal on his technical assistants, and the three first professors in the University of Sydney Medical School were very fortunate in having excellent men as their head laboratory assistants. George Macdonald was to Professor Welsh what John

Shewan was to Sir Thomas Anderson Stuart and what Louis Schaeffer was to Professor Wilson. George Macdonald, who also came from Edinburgh, was a great help to his chief in making students feel that they were the professor's first concern.

In 1935 the Senate of the University of Sydney resolved to record its appreciation of the distinguished services rendered to the university by Professor Welsh during his occupancy of the chair of pathology for a period of over thirty years. As a mark of honour the Senate appointed him Professor Emeritus, and adopted the following resolution:

The Senate of the University desires to place on record its appreciation of the valuable work which Professor D. A. Welsh has accomplished during his thirty-three years' tenure of the Chair of Pathology.

The Senate feels that the high standard which the Medical School has attained is, in no small measure, due to the reputation which Professor Welsh has earned both as a teacher and as a scholar, and wishes to congratulate him on the distinction which he has brought not only to himself, but to the University by his work in his classes and by his researches and publications.



Professor Welsh has been eminently successful as a teacher. An enthusiast in his subject, a clear and able expositor, a scholar of the first rank, he has left a mark on the Medical Faculty which will not readily be effaced, while his kindly ways and approachableness have endeared him to the many hundreds of students who have passed through his classes. His contributions to knowledge have been many and noteworthy. His researches in Immunity, Snake Poisoning, Hydatid Disease, Tuberculosis, Cancer and Diseases of the Blood and more especially his papers on the Parathyroid Glands, which are widely quoted in medical literature, have earned him an enviable reputation. The Senate also remembers with gratitude the work which Professor Welsh performed as Dean of the Faculty of Medicine, and as the adviser to the Cancer Research Committee. The Senate would like to assure Professor Welsh of its high regard, and hopes that he will be long spared to enjoy his retirement after such long and honourable service.

Professor Welsh's work was not limited to the Faculty of Medicine. Students of dentistry also attended his classes.

When the Faculty of Veterinary Science was established students in this Faculty attended Professor Welsh's classes for several years, and the diplomas in public health and in tropical medicine received their baptism of pathology in his department for many years until more specialized departments were ready to adopt them entirely.

Professor Welsh attracted graduates of high calibre to join his staff. One of these, T. C. Parkinson, died of pneumonic plague while engaged in research on plague in London, and the university gives a prize in memory of him. Among other members of his staff were men and women who have done much to advance pathology in Australia, in universities, in hospitals and in private practice.

Great, however, though Professor Welsh's influence was in the development of pathology, his influence on students who were to practise medicine in all its branches was still greater. Those who were privileged to study under him will agree that his lectures were full of interest and admirably presented. He laid great stress on practical classes; he participated in these classes and took an individual and personal interest in all his students.

For those few who worked as his close colleagues he provided a stimulating example because of his outstanding competence in his work, his high intellectual capacity and his cultivated mind. He brought from his homeland to the land of his adoption much that is best in the culture of the Old Country and his influence on medicine in Australia will last long.

Professor Welsh bore his last long illness with courage and with calm. He is survived by his widow, Mrs. Elizabeth Welsh, and his son, Dr. Arthur Welsh.

Dr. A. H. Tebbutt writes: There are good reasons why I should find it somewhat embarrassing to write a note on the late Emeritus Professor D. A. Welsh. But it cannot be forgotten that he was the first Professor of Pathology in the Sydney School, and that in the first two decades of this chair and of this century he made of pathology not only a subject but an attractive story which left valuable memories in the minds of generations of medical practitioners. So I shall write of this period, which was his prime. But also at his exit the final curtain drops on a great trinity of pioneers in the Sydney School. The other two were, of course, Anderson Stuart (physiology) and James T. Wilson (anatomy), both great men each in his own way. They were "Andy" and "Jummy" and "Taffy" to us. They were each in their time young men specially selected from the old Edinburgh School for the young Sydney School. In those days the exportable surplus from Edinburgh was rich both in quality and in quantity.

Although the late Professor Welsh lived in Sydney for nearly fifty years, medical students of today and graduates of the last decade would know of him but little. Though he carried on for his full term at the university, he has been long in retirement and latterly in poor health. Only those who "went through" in the first quarter of the century knew "Taffy" at his best. And let it be recorded in the annals of the Sydney School that for most of that period "Taffy" was, in contemporary student opinion, the best teacher in the school. Coming from Edinburgh, he was by repute one of Professor Greenfield's best young men. His speech was doubtless that of the cultivated man from Edinburgh, scarcely a Scotch accent, and was as clearly audible as its content was lucid and logical. He had few mannerisms, a little clearing of the voice at times, but he had a gentle and graceful wit. His clear but scholarly exposition, his unhurried and orderly progression, the unexpected little humorous simile all combined to make his lectures both popular with students and not soon forgotten. His attitude to students was sympathetic and understanding. In our time, for example, he found that he could not complete the course in special pathology, so he announced that he would not "do" the kidney and, to applause, that he would ask no questions on it. He was very human in those days. He told me once that he found the liver a large but uninteresting organ. One day we remarked on the atypical normoblasts in a blood film, and he said: yes, we will call them abnormal-blasts. Many will remember his autopsies, how simply they were conducted, how he always tried to demonstrate the effects of disease and time on the heart, the great vessels and the kidneys. Welsh was in fact a great teacher of pathology of the old school, dating from Edinburgh at its best. He was succeeded by Professor Keith Inglis, who was his most constant and sincere disciple for many years as lecturer, and no one could have had a better grounding in general pathology in those days than under Welsh.

There is a large volume of post-graduate instruction in Sydney today, but the first classes I can remember were those of "Taffy's". They were held at the Old Medical

School about the year 1913, and two of his students were Thomas Fiaschi and Watson Munro, and one of the techniques they essayed was the opsonic index! I do not know who might claim to have given the first blood transfusion in Sydney, but about 1913 I assisted Welsh to transfer blood from a volunteer to a leukaemic youth, the son of a medical man. Needles were inserted into veins and a syringe of blood drawn from the donor was transferred to the patient whilst another syringe of blood was drawn from the donor and so on. I am sure he knew nothing of blood groups, but I remember no serious reaction. It was only in 1913 in fact that by determining blood groups and using compatible blood Ottenberg and Kallaki showed that serious reactions could be avoided. The first blood transfusions in which citrate was used were in 1914 (Agote) and in 1915 (Lewisohn).

I will not attempt to review in detail his contributions to medical literature as I am writing without a bibliography and only from memory. He wrote on many subjects and particularly on the cancer problem in his later years. Perhaps his name is best remembered for very early work on the cytology of the parathyroid glands, and more so for his work (1906) in collaboration with H. G. Chapman on the precipitin reaction. (It is curious that though his main interest was morbid anatomy, yet his scientific reputation rests more perhaps on this serological work.) They showed that in precipitin reactions the bulk of the precipitate came from the antiserum or precipitin and not from the antigen, a finding which was the reverse of prior conceptions. Published by the Royal Society of London, this work found adequate recognition and commendation, and was later to be elaborated and expanded by Dean and Webb.

And so farewell to "Taffy". Let us remember him as he was in his prime.

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"On the Difficulty of Applying Bio-physical Principles to Biopathological Facts in Human Cancer", *Journal of the Cancer Research Committee of the University of Sydney*, Volume IX, 1938, page 91.

"Biology of Cancer Cell in Relation to Advancement of Treatment, with Special Reference to Certain Natural Defensive Reactions against Cancer", *Sydney University Medical Journal*, Volume XXXIII, 1939-1940, page 32.

Nominations and Elections.

THE undermentioned have applied for election as members of the South Australian Branch of the British Medical Association:

Hallett, Evan Charles, M.B., B.S., 1947 (Univ. Adelaide), Royal Adelaide Hospital.

Texler, Karl Maria, M.B., B.S., 1942 (Univ. Adelaide), 88, Hutt Street, Adelaide.

Texler, Eva, M.B., B.S., 1942 (Univ. Adelaide), Gawler Chambers, North Terrace, Adelaide.

The undermentioned has applied for election as a member of the New South Wales Branch of the British Medical Association:

Rosenthal, Eugene John, registered in accordance with the provisions of Section 17(b) of the *Medical Practitioners Act*, 1938-1945, 10, Challis Avenue, Potts Point.

Notice.

THE AUSTRALIAN NATIONAL ANTARCTIC RESEARCH EXPEDITION.

MEDICAL OFFICERS are required for the Australian National Antarctic Research Expedition. The secretary writes from Victoria Barracks, Melbourne, S.C.1, that applicants must be prepared to spend approximately twelve months on either Heard Island or Macquarie Island and it would be desirable

for them to interest themselves in such matters as biology and dietetics. The salary range is from £866 to £1026 per annum together with special allowances. In addition to the special allowances provision is made for amenities and insurance as well as for the accruing of recreation leave. Medical practitioners who are interested are invited to communicate with the secretary.

Honours.

BIRTHDAY HONOURS.

HIS MAJESTY THE KING has been pleased to confer the honour of knighthood on Dr. John Newman Morris, of Melbourne. The congratulations of the medical profession are offered to Sir John Newman Morris.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Honorary Secretary, 135, Macquarie Street, Sydney): Australian Natives' Association; Ashfield and District United Friendly Societies' Dispensary; Balmain United Friendly Societies' Dispensary; Leichhardt and Petersham United Friendly Societies' Dispensary; Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney; North Sydney Friendly Societies' Dispensary Limited; People's Prudential Assurance Company Limited; Phoenix Mutual Provident Society.

Victorian Branch (Honorary Secretary, Medical Society Hall, East Melbourne): Associated Medical Services Limited; all Institutes or Medical Dispensaries; Australian Prudential Association, Proprietary, Limited; Federated Mutual Medical Benefit Society; Mutual National Provident Club; National Provident Association; Hospital or other appointments outside Victoria.

Queensland Branch (Honorary Secretary, B.M.A. House, 225, Wickham Terrace, Brisbane, B.17): Brisbane Associated Friendly Societies' Medical Institute; Bundaberg Medical Institute; Brisbane City Council (Medical Officer of Health). Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL or position outside Australia are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.

South Australian Branch (Honorary Secretary, 173, North Terrace, Adelaide): All Lodge appointments in South Australia; all Contract Practice appointments in South Australia.

Western Australian Branch (Honorary Secretary, 205, Saint George's Terrace, Perth): Wiluna Hospital; all Contract Practice appointments in Western Australia. All government appointments with the exception of those of the Department of Public Health.

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